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Social and Economic Impacts of Toxic Waste Sites: Rose & Springfield Townships, Oakland Co.

Task 19c
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This report presents the Rose and Springfield Township orphaned toxic waste sites as a case history. Events and agency actions related to site cleanup and water well testing (1968 to 1981) are described. Based upon interviews with area residents, the types of social and economic impacts that were experienced are identified. Alternative activities are also identified to aid local governments in dealing with the discovery of toxic waste sites. Recommendations focus on the need for communication with residents directly affected by toxic waste sites.

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SOCIAL AND ECONOMIC IMPACTS OF TOXIC WASTE SITES:
ROSE AND SPRINGFIELD TOWNSHIPS
OAKLAND COUNTY, MICHIGAN

Task 19c of Groundwater Management Strategy for Michigan
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Prepared for Michigan Department of Natural Resources, Water Quality Division
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PREFACE

As government agencies and communities gain experience in responding to toxic waste emergencies, it is important that the experience be transferred to other communities. It is hoped that the case history of government actions and community response for the Rose and Springfield Township toxic waste sites will be useful to other communities in planning future responses.

This report could not have been prepared without the cooperation and assistance of numerous agency representatives and officials, as well as Rose and Springfield Township residents. State, County and local government provided information on agency actions and events. Residents shared their experiences through interviews, identifying social and economic impacts on their families and communities. Finally, township officials provided insights into potential roles for local governments in assisting with cleanup and communicating with residents. The assistance of all persons contributing to this effort is greatly appreciated.

SUMMARY OF MAJOR FINDINGS

INTRODUCTION

Toxic chemicals spilled or leaked into surface soils at illegal dumping sites may reach groundwater and may be carried to private water wells at nearby homes and businesses. As demonstrated by the experience of Rose and Springfield Township residents, groundwater contamination of private wells does not need to occur or be confirmed before social and economic impacts in the community are felt.

The high cost of physically cleaning up sites when barrels of toxic chemicals are found is well-known in Michigan. The costs and impacts on families affected by toxic wastes near their homes however, is not well understood. Through a series of interviews with residents and government agencies involved in the cleanup effort, the types of community impacts experienced in Rose and Springfield Townships are highlighted in this report. Social and economic effects on individual households near toxic waste sites can be severe. Factors such as communication and information from county and state agencies, the lack of easily-understandable information on health effects of toxic chemicals, and the nature of media coverage influence the type and extent of social and economic impacts.

Toxic waste site cleanup is typically viewed as the job of state agencies, working with county health departments. As described here, however, local governments can assist by providing an essential communication link between agencies and residents. In view of the lack of credibility in government (especially county and state agencies), local governments should be encouraged to play an active role in communicating with residents when toxic waste sites are found.

HISTORY OF EVENTS

In response to the phone calls from several officials and a citizen, staff members from the Oakland County Health Division and the Michigan Department of Natural Resources completed site inspections of two illegal toxic waste sites in Rose and Springfield Townships in Spring, 1979. Approximately 5,000 barrels of toxic chemicals were found at the two sites, including barrels with PCBs (polychlorinated biphenyls), paints, solvents, paint sludges, oils and greases, cadmium, lead, chromium, benzene, and other highly-toxic chemicals.

The chemicals had been dumped in the late 1960's by two haulers who collected liquid wastes from several different companies in the Detroit area, including automotive factories and paint companies. Although some barrels were buried and intact, some had leaked their contents into the soils.

The sites had been known to county and local officials as dumping locations in the late 1960's, but were not widely recognized as posing groundwater and public health threats. When the site investigations and subsequent laboratory tests of the chemicals were completed in 1979, an inter-agency effort to clean up the sites was initiated. It was determined that legal action against the site owners or companies generating the industrial wastes would be difficult to pursue. State funding for cleanup appeared to be the only feasible approach for public health protection.

In August, 1979, the Detroit Free Press printed a story titled "Dump Sites Leak PCB in Oakland: Tests Due." The article was the first notice for many residents and local officials that a problem with toxic chemicals at the Rose and Springfield Township sites did exist. A number of residents near the toxic waste sites became extremely concerned about past, present, and potential future health threats from drinking water.

The State of Michigan's first toxic substance emergency was declared for the two sites in September, 1979. Many offcials believed that the declaration would provide the funds necessary to clean up the sites. As it turned out, a special legislative appropriation was needed. Special funding for the Rose and Springfield Township cleanup totalling $1.2 million was provided by the Michigan Legislature in December, 1979. State and county administration and laboratory costs, not funded through the special bill, added an additional $900,000 to the cost of cleanup. It is not known if funds provided to date will be sufficient to control the toxic wastes on the site.

In August, 1979, state and county agencies developed an inter-agency approach to site cleanup. Following the declaration of the toxic substance emergency, the Toxic Substance Control Commission became the coordinator of this interagency cleanup effort. The Michigan Department of Public Health and the Oakland County Health Division initiated a program for private well water testing within a radius of approximately one-half to one mile of each site. The Michigan Department of Natural Resources tested and sorted the barrels. Hydrogeologic studies to determine the extent of contamination at the two sites were also initiated. The Michigan Department of Agriculture completed an agricultural products survey and tested animals and crops in the area of the toxic waste sites. The Toxic Substance Control Commission coordinated agency actions and disbursed funds appropriated by the Legislature. Rose and Springfield Township officials assisted state and county agencies as needed, and helped facilitate communication between residents and agencies.

In August, 1979, the Michigan Department of Natural Resources completed laboratory analysis of private water well samples. Trace levels of toxic chemicals, including TCE, PCE, lead, and DEHP were found. Eight of the ten wells with TCE and PCE had concentrations less than 10 parts-per-billion, which was the "long term" drinking water guideline suggested by the U.S. Environmental Protection Agency. Lead levels slightly higher than the accepted drinking water standards of 50 parts-per-billion were found in three wells. DEHP, for which no standards have been developed, showed varying levels. Some phenol which merited further investigation was also found. The levels found did not exceed drinking water standards, but did indicate the need for further private water well testing. During a second round of testings conducted by the Michigan Department of Natural Resources, trace levels of toxic chemicals were not found.

In September, 1979, the Michigan Department of Public Health assumed responsibility for private water well testing. (In all cases, the Oakland County Health Division assisted with the collection of the water well samples.) The results of the testing indicated that PCE and/or TCE were present at low levels in 21 wells. Test results for the next six months, however, did not reveal trace levels of any contaminants. The Michigan Department of Public Health, working with the Oakland County Health Division, discontinued the testing in June, 1980 since all wells being tested showed no evidence of toxic chemicals for four consecutive rounds.

In order to protect public health in view of the uncertainty about toxic chemicals in the water wells, the Oakland County Executive provided bottled water free of charge to all residents whose wells had trace levels of contaminants. The Oakland County Board of Commissioners approved an expenditure of $10,000 for bottled water delivery, and contracted with a private water company for the service.

The Michigan Department of Natural Resources began the actual process of site cleanup in late fall, 1979. Direct site cleanup costs to date include $750,000 for excavation, containment and transportation of barrels; $152,000 for waste storage and disposal; and $150,000 for hydrogeologic studies. In addition, four state agencies, the Oakland County Health Division, and Rose and Springfield Townships have incurred costs for water well testing, administration, site inspection, public information, and related activities. As of December, 1981, costs to agencies were as follows:

Oakland County Health Division:	$211,400
Michigan Department of Public Health:	$109,800
Toxic Substance Control Commission:	$300,000 (general estimate)
Michigan Department of Natural Resources	$299,700
Michigan Department of Agriculture	$ 11,300
Springfield Township:	$11,000-$12,000
Rose Township:	- No dolllar cost available, although significant time was spent on the issue by local officials.

Thus, more than $900,000 has been spent by various government agencies in addition to the $1.2 provided by the Michigan Legislature.

Initially, when trace levels of toxic chemicals were found, a few residents were personally notified by the Oakland County Health Division (via telephone) of the results of the water well tests. For the most part, residents learned the results of the water well tests through letters. The Oakland County Health Division published a community newsletter to provide a basic source of information about events. Several public meetings were sponsored by Rose and Springfield Township officials in order to answer resident questions and provide information.

During the time that the private water well testing was continuing, television, radio, and newspapers provided extensive, although on occassion, distorted coverage of events. Both before and following the declaration of the toxic substance emergency, the media reported "groundwater contamination im Rose and Springfield Townships." The fact that the levels of toxic chemicals found were, for the most part, well within safe health limits was not reported. Media coverage heightened the level of concern about the problem within Rose and Springfield Township and outside the communities. Nearly all residents interviewed believe that the extensive publicity has directly affected marketability of property in the two townships.

SOCIAL AND ECONOMIC IMPACTS ON COMMUNITY RESIDENTS

The Michigan Department of Natural Resources contracted with the Southeast Michigan Council of Governments to complete a review of social and economic impacts related to the toxic waste sites in Oakland County. The purpose of the study requested was to obtain a complete picture of costs related to toxic waste site cleanup, and to examine the role of townships when toxic waste sites are found.

The Southeast Michigan Council of Governments was an appropriate agency to conduct the study because the organization had not been directly involved in the cleanup events and, through other tasks, had been exploring local government involvement in groundwater protection.

Between February and April, 1982, interviews with 21 persons living within two miles of either the Rose or Springfield Township toxic waste site were completed. In addition, interviews with three realtors and several persons residing beyond two miles were conducted.

Major findings from the interviews include the following:

1. The range of social and economic impacts experienced by residents is extremely broad. Some persons have experienced severe stress, fears of future health problems, feelings of being "trapped" (due to the difficulty in selling homes), and/or have paid for laboratory tests of drinking water. Some neighboring families, on the other hand, have experienced few social and economic effects. Due to the variations in impacts and the limited number of persons contacted, a single dollar figure for resident costs has not been estimated.

2. Lower property values (or marketability of property) is viewed by nearly all persons interviewd as one of the most signficant effects created by the Rose and Springfield Township toxic waste sites. Psychologically, a number of families living within 1 or 2 miles of the toxic waste sites feel trapped and believe that they may never be able to sell and move from their present homes.

3. Five persons interviewed paid for private laboratory tests of their water supply at costs ranging from $100 to $750, depending on the extent of the testing requested. In some cases, residents wanted a second opinion on drinking water quality. In other cases, residents were not eligible to obtain testing services through the Oakland County Health Division but felt that their drinking water supply might be contaminated.

4. In addition to private laboratory water well tests, expenses incurred by residents directly related to the toxic waste site included:

   - attorney's fees (at least two lawsuits representing ten to twenty families have been filed)

- purchase of bottled water (7 households)
- telephone and mileage costs related to public meetings and contacts with state and county agencies (4 households experienced costs over $100).
- business liability insurance against future groundwater contamination (one businessman)
- increased interest rates and construction costs due to a decision to postpone home construction (one family)

5. Several families have experienced severe stress and anxiety related to the uncertainty of future contamination. Some residents have grave concerns about the future health of their families.

6. More than 50 percent of the persons interviewed living within two miles of the toxic waste sites articulated their distrust, cynicism, or lack of faith in the government agency cleanup effort. Some residents view county and state agencies as part of a "coverup" effort, citing the pattern of water well test results (some contamination followed by none) to support their view.

7. Almost 50 percent of the persons interviewed raised questions and concerns about communication between state and county agencies and residents affected by the toxic waste sites. Some residents feel strongly that additional information should be provided to citizens and that there was little effort on the part of county and state agencies to communicate the true facts.

The story of the Rose and Srpingfield Township toxic waste sites is not over. Tests on the toxic waste sites are underway to determine the potential for movement of contaminants from the sites. Until the future possibility of contamination of individual residential water wells is removed, many of the community impacts are likely to persist.

LOCAL GOVERNMENT ROLES IN TOXIC WASTE SITE EMERGENCIES

Townships, villages and cities in Michigan have sufficient legal authority to assist state and county agencies in cleanup activities, to monitor state and county agency activities, and to communicate with residents about ongoing cleanup efforts. The need for effective communication between state and county agencies and residents was emphasized by some residents interviewed. Due to the distrust of state and county agencies, local government officials have an important opportunity to provide assistance.

Communication tools which may be used by local governments in cases where toxic waste sites are found include:

- Newsletters to report progress and plans for site cleanup;
- Ombudsman, to be available to meet with residents on an individual basis and communicate questions and concerns to agencies.
- Citizen information committee to facilitate communication
- Technical review group to review results of technical studies
- Public meetings to allow residents to ask questions and share concerns with state and county agencies.

County and state officials must provide information and assistance to local officials to make communication program effective. When state and county agencies meet to determine roles and responsibilities to toxic waste site cleanup, local government representatives should be contacted and included in the planning.

Additional recommendations for local government communication efforts are as follows:

1. Communication programs should be directed beyond the immediate area where water well testing is being conducted. As demonstrated in Rose Township especially, residents throughout a community may be concerned about future contamination threats. In both Rose and Springfield Township, residents with no water well contaminants have experienced social and economic impacts and are concerned about cleanup activities.

2. Whenever possible, communication should be undertaken and maintained on a one-to-one basis. When newspapers and television are a primary source of information, mis-information and misunderstanding can be the result. Media coverage is limited by time and space and the need for attention-grabbing news. A strong direct, but personal, communication program with residents is needed to assure that citizens have accurate information upon which to base personal decisions.

3. If conflicts between government agencies and citizens appear to be leading toward legal action, environmental mediation should be considered as an alternative. It is much more sensible to direct limited public and private funds toward cleanup of sites than it is to use the funds for legal fees and court action.

The experiences of Rose and Springfield Townships with toxic wastes and agency cleanup efforts are, of course, unique to these Oakland County communities. At the same time, the case study provides useful background information and insights for officials involved in toxic waste cleanup and response. As demonstrated in Rose and Springfield Townships, local officials can play an important role in communication. Strong communication programs should be encouraged and carefully planned, with involvement from agencies and officials at all levels.

CONTENTS

Page

Abstract -- iii

Preface --- v

Summary of Major Findings ----------------------------------- vii

List of Figures --- xix

CHAPTER I: INTRODUCTION------------------------------------- 1

THE PROBLEMS OF ORPHANED TOXIC WASTE SITES ----------- 3

PROJECT OBJECTIVES ----------------------------------- 4

APPLICATION OF FINDINGS ------------------------------ 5

CHAPTER II: ROSE AND SPRINGFIELD TOWNSHIP TOXIC WASTE SITES: CASE HISTORY OF EVENTS AND AGENCY ACTIONS------- 7

INTRODUCTION --- 9

EARLY HISTORY: 1966-1971 ---------------------------- 11

RE-DISCOVERY OF THE TOXIC WASTE SITES: JANUARY, 1978 - SEPTEMBER, 1979 ---------------------- 21

DECLARATION OF THE TOXIC SUBSTANCE EMERGENCY AND AGENCY RESPONSES: SEPTEMBER, 1979 - DECEMBER, 1981 33

Michigan Department of Natural Resources --------- 37

Michigan Department of Agriculture --------------- 40

Oakland County Health Division ------------------- 42

Michigan Department of Public Health ------------- 45

Springfield Township ----------------------------- 46

Rose Township ------------------------------------ 47

Page

CHAPTER III: SOCIAL AND ECONOMIC IMPACTS ON COMMUNITY RESIDENTS 51

APPROACH TO IMPACT ASSESSMENT ------------------------ 53

INTERVIEW METHOD ------------------------------------ 53

RESIDENT PERCEPTIONS OF TOXIC WASTE HAZARDS AND WATER WELL TESTING --------------------------------- 59

ECONOMIC IMPACTS OF INDIVIDUALS --------------------- 60

Lower Property Values ---------------------------- 61

Loss of Income ---------------------------------- 64

Loss of Business -------------------------------- 64

Cost of Professional Services -------------------- 64

Relocation Costs -------------------------------- 65

Purchase of Bottled Water ----------------------- 65

Other Costs to Residents ------------------------ 66

HEALTH EFFECTS --------------------------------------- 67

Physical and Mental Illness --------------------- 67

Psychological Effects --------------------------- 68

Concern about Future Health Problems ------------- 68

SOCIAL EFFECTS --------------------------------------- 69

Cooperation and Communication Among Neighbors ----- 69

Feeling of Fear or Uncertainty ------------------ 71

Community Appearance (Aesthetics) ---------------- 71

Family Relationships ---------------------------- 72

Life Style and Activities ----------------------- 72

Personal Plans or Decisions --------------------- 73

Community Image --------------------------------- 73

Page

Trust in Government---------------------------- 73

Frustration Due to Lack of Communication or Information--------------------------------- 75

Public Policy Implications---------------------- 76

CHAPTER IV: LOCAL GOVERNMENT ROLES IN TOXIC WASTE SITE EMERGENCIES------------------------------------ 79

INTRODUCTION--- 81

LEGAL AUTHORITY FOR LOCAL GOVERNMENT ACTIVITIES------- 82

CLEANUP ASSISTANCE ROLES AND ACTIVITIES-------------- 83

Local Funds for Cleanup------------------------ 84

Support Services for Cleanup and Water Supply Testing---------------------------- 84

MONITORING COUNTY AND STATE AGENCY ACTIVITIES--------- 85

COMMUNICATION ROLES AND ACTIVITIES------------------- 86

ENVIRONMENTAL MEDIATION AS A TOOL FOR RESOLVING TOXIC WASTE DISPUTES--------------------------------- 89

RECOMMENDATIONS FOR LOCAL GOVERNMENT ACTIVITIES------- 91

APPENDIX A: INTERVIEW GUIDE--------------------------------- 93

APPENDIX B: INTERVIEW SUMMARIES----------------------------- 101

LIST OF FIGURES

		Page
Figure 1	Toxic Waste Site Locations: Rose and Springfield Townships, Oakland County, Michigan	10
Figure 2	Rose and Springfield Township Toxic Waste Sites: Costs for Site Cleanup	12
Figure 3	Rose and Springfield Township Toxic Waste Sites: Government Agency Administrative Costs, Including Water Well Sampling Costs	13
Figure 4	Summary of Social and Economic Impacts Caused by Toxic Waste Sites	57

CHAPTER I: INTRODUCTION

CHAPTER I: INTRODUCTION

THE PROBLEM OF ORPHANED TOXIC WASTE SITES

Toxic waste sites, commonly labeled "industrial waste dumps", are being found throughout Michigan. Sites frequently have barrels of industrial chemicals and waste material. The contents of the barrels are sometimes intentionally spilled onto the ground so that barrels can be resold, or may leak their contents due to weathering. Barrels have been found buried or on the ground surface. Although called dumps, the illegal disposal often takes place in gravel pits, swampy lowlands, and other places where it may not be detected. Because of the industrial nature of Southeast Michigan and the expense and difficulty of the proper waste disposal, toxic waste sites are believed to be scattered throughout the region. Newspapers carry reports of "barrel discoveries" on a continuing basis.

A special problem related to toxic waste sites is that responsibility for the initial dumping is often difficult to determine. Such dumps are termed "orphaned sites" and public funds are the only feasible approach for site cleanup. Groundwater is the sole source of drinking for many residents of the State, and contamination can threaten health, community development, and community well-being. The list of known groundwater contamination sites from a wide variety of sources continues to grow.

Two toxic waste sites re-discovered in Oakland County in 1979 have received substantial publicity and state funds. An estimated 6,500 barrels of industrial wastes, including many barrels of toxic materials, were found on two properties. A Toxic Substance Emergency for the Rose and Springfield Township sites was declared in September, 1979 and a legislative appropriation of $1.34 million was made in December, 1979 to pay for cleanup activities.

The Rose and Springfield Township sites were the first Toxic Substance Emergency declared in Michigan. The sites have also been a focus for one of the first extensive inter-agency programs for response and cleanup. Since the declaration of the emergency in September, 1979, sufficient time has passed to allow a review of events surrounding the discovery of the two toxic waste sites and their effect on the community. One purpose of this report is to document the case history and community impacts related to the two sites. A second important purpose is to describe possible roles for local government when toxic waste sites are found.

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PROJECT OBJECTIVES

With the problem of illegal industrial toxic waste sites State-wide, it is important for government officials, agencies, and residents to learn from past experiences. The central purpose of this report, therefore, is to document the events surrounding the Rose and Springfield Township sites so that future governmental and citizen responses for cleanup at other sites can be effective. The objective is not to judge events, actions or decisions as being strong or weak... it is simply to report the situation and community responses. Recognizing that local government can be an effective partner in a cleanup effort, possible roles for local governments in toxic waste cleanup and communication with residents are outlined.

It is the basic premise of this report that a complete accounting of the Rose and Springfield Township toxic waste sites requires a documentation of social and economic impacts experienced by residents as well as a report of agency actions. The physical cleanup of the toxic wastes at the two sites is an extremely important ongoing effort. But it is also important to understand the effects of a toxic waste hazard and cleanup activities on community life.

Chapter II of this report traces the history of events and agency activities related to the Rose and Springfield Township sites. The description is based upon interviews with local officials, agency representatives, and a review of file materials from several offices. Because of the long and complex history of the two sites (1968 to the present), the case history of events is a necessary pre-requesite for understanding community response and impacts.

Economic, health, and social impacts stemming from the toxic waste site are described in Chapter III. The chapter reports the results of 26 interviews with residents and realtors. Although the extent of certain impacts will certainly vary from site to site and from individual to individual, it is believed that the categories and types of impacts experienced in Rose and Springfield Township are similar to impacts which would be felt near other toxic waste sites where groundwater contamination has occurred, or is a threat.

Chapter IV identifies possible roles that Township governments can play in communicating with residents and assisting with cleanup activities. Responses to industrial toxic waste sites do require the support and expertise of county and state agencies. Based upon interviews with residents in Rose and Springfield Townships, as well as county and state agency representatives, townships can play an important role.

APPLICATION OF FINDINGS

Although recommendations for future social and economic impact studies and Township roles for toxic waste site cleanup are contained in this report, it is expected that the use and application of the information reported here will be widely varied. Possible uses of the information include the following:

- Local and county officials in locations outside Rose and Springfield Townships may use the information to develop their own response plan to a toxic waste emergency.

- Government agencies may use the information to illustrate the potential economic effects of toxic waste sites, and to stimulate the development of funding sources for cleanup.

- The method for assessing social and economic impacts may be applied to other types of groundwater contamination threats. In addition, a consideration of the extent and types of economic costs to residents may lead to alternative ways of reducing the impacts.

- Citizens may find this report useful in developing citizen responses and action when toxic waste sites are found.

This case history and description of social and economic effects is an in-depth review of events surrounding a single toxic substance emergency. The implications of the case history will vary, reflecting the interest and perspective of the individual.

CHAPTER II: ROSE AND SPRINGFIELD TOWNSHIP TOXIC WASTE SITES: CASE HISTORY OF EVENTS AND AGENCY ACTIONS

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CHAPTER II: ROSE AND SPRINGFIELD TOWNSHIP TOXIC WASTE SITES CASE HISTORY OF EVENTS AND AGENCY ACTIONS

INTRODUCTION

Rose and Springfield Townships are two rural townships located in Oakland County, Michigan. Both Townships are approximately 60 miles northeast of the City of Detroit, and about 35 miles southwest of the City of Flint. (See Figure 1.) Rolling hills, wetlands, small lakes and scenic vistas have attracted former urbanites, and both Townships experienced significant growth in the 1970's. The Rose Township population grew from 2,500 persons in 1970 to approximately 4,400 persons in 1980. Springfield Township population also nearly doubled in the decade, increasing from 4,400 persons in 1970 to 8,300 persons in 1980. As reflected by realtors interviewed for this study, new residents are attracted to good housing values and the rural environmemt.

In 1979, newspapers, television, and radio programs throughout Southeast Michigan carried the story: toxic waste dumps found in Rose and Springfield Townships. The announcement of the toxic waste sites paralleled efforts and state, county, and local officials and agencies to clean up the toxic waste sites and protect public health. The efforts are still continuing.

The Rose Township site, just south of DeMode Road near Buckhorn Lake Road, was found to contain approximately 5,000 barrels of industrial waste materials. The Springfield Township site located on Shindler Road, east of Ormond Road was found to contain approximately 1,500 barrels. Some barrels at both sites were buried, empty, or leaking. Laboratory analysis revealed the drummed materials to be primarily automotive production wastes, such as paints, paint solvents, paint sludges, oils and greases. PCBs (polychlorinated biphenyls), cadmium, chromium, lead phenols, and benzene were among the most serious toxic chemicals at the sites. Because barrels of hazardous wastes were carried to the sites by the same haulers, and because the barrels were re-discovered at the same time, the two sites are considered together in this case history report.

The major events and agency actions related to the toxic waste sites in Rose and Springfield Township are described in this chapter. The history is organized into three parts:

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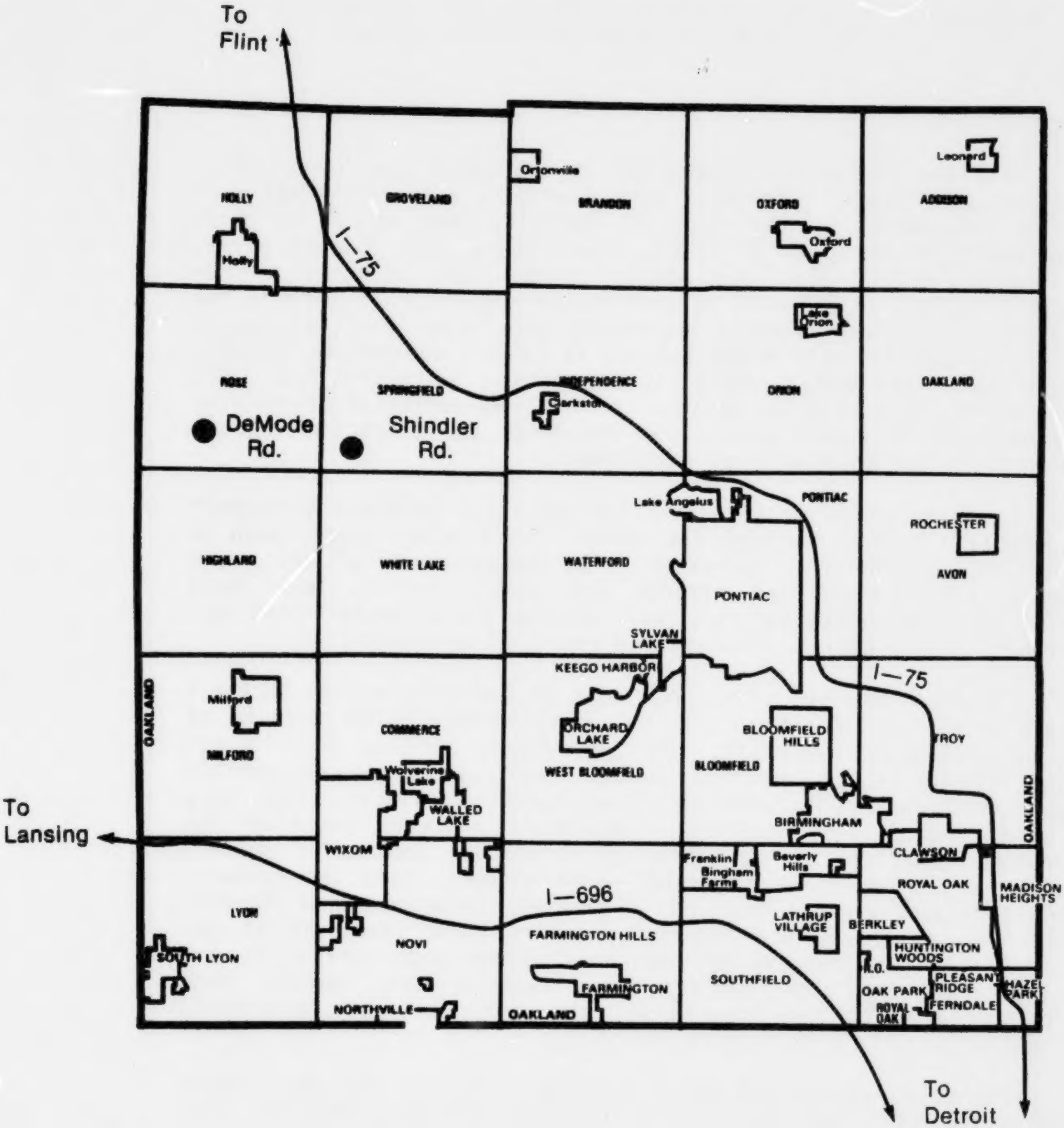
FIGURE 1

TOXIC WASTE SITE LOCATIONS:
ROSE AND SPRINGFIELD TOWNSHIPS,
OAKLAND COUNTY,
MICHIGAN


To Flint
HOLLY
Holly
GROVELAND
Ortonville
BRANDON
OXFORD
Oxford
Leonard
ADDISON
I—75
ROSE
SPRINGFIELD
INDEPENDENCE
Clarkston
ORION
Lake Orion
OAKLAND
DeMode Rd.
Shindler Rd.
HIGHLAND
WHITE LAKE
WATERFORD
Lake Angelus
PONTIAC
PONTIAC
ROCHESTER
AVON
SYLVAN LAKE
KEEGO HARBOR
I—75
OAKLAND
Milford
MILFORD
COMMERCE
ORCHARD LAKE
WEST BLOOMFIELD
BLOOMFIELD HILLS
BLOOMFIELD
TROY
OAKLAND
Wolverine Lake
WALLED LAKE
BIRMINGHAM
To Lansing
WIXOM
Franklin
Bingham Farms
Beverly Hills
CLAWSON
ROYAL OAK
MADISON HEIGHTS
I—696
LYON
NOVI
FARMINGTON HILLS
LATHRUP VILLAGE
BERKLEY
HUNTINGTON WOODS
SOUTH LYON
FARMINGTON
SOUTHFIELD
R.O.
OAK PARK
PLEASANT RIDGE
HAZEL PARK
NORTHVILLE
OAKLAND
ROYAL OAK
FERNDALE
To Detroit

- Early History: 1966-1971
- Rediscovery of the Toxic Waste Sites: January, 1978 - September, 1979
- Declaration of the Toxic Substance Emergency and Agency Responses: September, 1979 - December, 1981.

Reports, file materials, and interviews with officials and agency staff were used in compiling this case history chapter. A summary of costs for site cleanup is shown in Figure 2. Figure 3 summarizes government administrative costs. The reaction of citizens in both Townships, as well as social, economic, and health impacts on the community, are documented in Chapter III of the report. The impact assessment information is based upon interviews with 15-20 Township residents. Chapter IV describes possible roles which a Township government might play in facilitating cleanup and communication when toxic waste sites are found.

The history of the Rose and Springfield Township toxic waste sites is not over. Although consecutive testing has found residential water supplies to be safe, some residents are concerned about future health problems, property value impacts, and the future for their drinking water supplies. Technical studies at the waste sites are still in progress to determine possible methods for containment or removal of remaining contaminants from the sites themselves. Though activities at the site are ongoing at the publication of this report, the purpose of this study can be met through the review and documentation of the history to date.

Without a conscious effort to see a particular event (such as the discovery of toxic waste materials) from all perspectives, the full impact and meaning of an event can be lost. By fully documenting the history and responses to the Rose and Springfield Township incident at this point, it is hoped that other townships and counties will be able to understand what can happen with a toxic waste site discovery. Although each site is different, it is believed that responses, problems, and concerns often follow similar patterns. Toxic waste sites are being found throughout Southeast Michigan and throughout the State, and it is important that we learn from our past experience.

EARLY HISTORY: 1966-1971

In the mid and late 1960's, various industrial wastes, including liquids, sludges and solids, were illegally dumped at several sites in Southeast Michigan. One site was located on Shindler Road in Springfield Township (owned by Joseph Nickson) and

FIGURE 2

ROSE AND SPRINGFIELD TOWNSHIP TOXIC WASTE SITES: COSTS FOR SITE CLEANUP

(as of December, 1981)

In December, 1979, the Michigan Legislature approved a special appropriation totalling $1,222,000 to be used in the clean-up of the Rose and Springfield Township toxic waste sites. The disbursement of the funds was managed by the Toxic Substance Control Commission, working in cooperation with other agencies.

Cleanup costs to date have included the following expenditures:

Hydrogeologic studies of the sites :	$150,000
(Approximately 50% of the funds for hydrogeologic studies have been expended to date.)	
Excavation of 6,500 barrels and transportation to disposal areas:	$750,000
Disposal of toxic and non-toxic waste:	$152,000
(this figure includes $25,800 for two-year storage of wastes with high concentrations of PCB's. Disposal of wastes with a concentration of PCB's was made at an EPA-approved site in Alabama at a cost of $27,500, which included a special price reduction.)	

Costs for removal of contaminated soil or containment of the toxic chemicals remaining at the site have not been developed. The extent of soil and groundwater contamination is not known, and hydrogeologic studies are being conducted by the Michigan Department of Natural Resources.

FIGURE 3

ROSE AND SPRINGFIELD TOWNSHIP TOXIC WASTE SITES: GOVERNMENT AGENCY ADMINISTRATION COSTS, INCLUDING WATER WELL SAMPLING COSTS

(as of December, 1981)

Four state agencies, the Oakland County Health Division, and Rose and Springfield Township have expended time and funds to help with water well testing, administration, site inspection, communication and related business. Costs for each key agency are listed below:

(Figures have been rounded to the nearest $100)

Oakland County Health Division

Personnel Costs:	$189,600
Travel Costs:	1,800
Consultant Fees:	3,300
Supplies/Materials/Postage:	16,700
TOTAL	$211,400

(The cost of bottled water, provided by the Oakland County Executive totalled $8,500 and is not included in the Health Division cost figures).

Michigan Department of Public Health:

Personnel Costs:	$ 38,000
Travel Costs:	900
Private Laboratory Services	46,100
MDPH Laboratory - Water Supply Tests:	16,500
MDPH Laboratory - Blood Tests	400
Indirect Costs:	8,800
TOTAL	$109,800

Toxic Substance Control Commission:

Total Estimated Costs	$300,000

FIGURE 3 (cont'd)

ROSE AND SPRINGFIELD TOWNSHIP TOXIC WASTE SITES: GOVERNMENT AGENCY ADMINISTRATION COSTS, INCLUDING WATER WELL SAMPLING COSTS

(as of December, 1981)

Michigan Department of Natural Resources

Personnel Costs:	$117,000
Travel & Expenses:	10,600
Laboratory -:	
Drum Contents Analysis:	$122,600
Domestic Well Sample Analysis:	19,100
Soil Sample Analysis:	$ 25,300
Monitoring Well Sample Analysis:	5,100
TOTAL	$299,700

Michigan Department of Agriculture:

Personnel Costs:	$ 6,100
Travel:	800
Laboratory:	4,400
TOTAL	$ 11,300

Springfield Township:

Time of officials involved with meetings and contacts with citizens, Auugst, 1979 - December, 1981:	$7,000-$7,500 estimated.
Loss of property tax revenues (due to lower assessed valuations near the site):	$2,000-2,500 in 1980 $1,000 in 1981
Legal Costs:	$1,000 maximum

Rose Township:

No dollar cost available. Meetings and contacts with citizens and agencies occupied 75% of the Supervisor's time for a 4-5 month period, and some time on a continuing basis. Substantial time from the Clerk and Treasurer was also involved.

one site was near DeMode Road in Rose Township (owned by Leonard Dorsey). According to investigations of the Michigan Department of Natural Resources, the hauling was primarily done by two men, Tucker Ford and Freddy Butler. Wastes were picked up from several different companies in the Detroit area, including automotive factories and paint companies.

For some years, Tucker Ford and Freddy Butler took the wastes to landfills. However, when the first Michigan solid waste law was passed (Act 87, P.A. of 1965), many landfills were no longer permitted to accept liquid wastes. As a result, the truckers began dumping barrels at the unlicensed sites on Shindler and DeMode Roads. Analysis of the barrels and their materials at the two sites confirmed that the types of materials are the same.

The two dumping sites are off of local dirt roads, and are not visible from main roads. Coincidentally, both areas had the reputation of places of illicit activities, including wild parties, still operations, and disposition of stolen cars. To some residents, at least, dumping of barrels at these sites was simply one more in a series of strange or illegal activities.

The first concern about the toxic waste sites came from residents living near the DeMode Road site. The residents were bothered by trucks rumbling in the night, and barrels were sometimes found along the roadside. A Township dump was located on DeMode Road which was used by Township residents for the disposal of household garbage and junk. The trucks filled with barrels came during late hours, however, and seemed to several residents to be clearly illegal. The trucks were taking the barrels to the Dorsey property, separate from the Township dump.

In June, 1968, Milton Nelson, then the Supervisor of Rose Township, wrote to the Oakland County Health Department reporting the DeMode Road dumping operation. In his letter, he reported that he had received:

> "several complaints of dumping paint thinner and other chemicals into pits and the ground...This dumping appears to be a commercial operation as there are many truck loads of this material being hauled in daily and dumped. I believe this is or will pollute the water wells in the area as well as being a dangerous fire situation. Several months ago I ordered the owner of this property to cease this operation immediately which he has not done. I believe this to be in violation of Public Act 87 ...Will you kindly investigate this situation and take the necessary action to stop it and correct same?"

With this letter, the Oakland County Health Department was notified of one of the dump sites.

Leonard Dorsey and Tucker Ford had three legal actions taken against them as a result of the dumping of the late 1960's. None of the legal actions resulted in site cleanup.

First, on November 26, 1968, Tucker Ford was charged criminally with operating an unlicensed landfill. The charge was made in Justice Court and no records are available, although he appears to have paid a fine of $100. The Justice Court ordered cleanup of the Rose Township site, but cleanup was not initiated.

A memorandum was written by a staff member of the Michigan Department of Natural Resources on December 10, 1968, after the staff participated in the Justice Court case. The memorandum noted that after the case was finished, the Oakland County environmental Health Division Director, Bob Coleman, served notice to Mr. Ford and Mr. Dorsey pending a Circuit Court case initiated by a neighbor. The memorandum also noted that the Oakland County Health Department had recently found another disposal facility for industrial liquids that looked like it was operated by Mr. Ford. In order to determine whether Mr. Ford was continuing to use the facility, the Oakland County Health Department was going to keep the site under surveillance.

On February 27, 1969, the landowners adjacent to the Dorsey property filed suit. Against the wishes of the adjacent landowners, some barrels had been dumped on their property. The Oakland County Circuit Court judge issued the following orders:

- That the owners be permanently enjoined from disposing of industrial waste and steel barrels unless a license was obtained in accordance with state law;
- that all barrels and waste be removed from the property;
- that all industrial waste such as paint and oil be drained and removed from the property and excavated pits containing the waste material filled with clean soil.

Sixty days were allowed for compliance. Leonard Dorsey and Tucker Ford were required to pay the $100 attorney fee for the Plaintiffs, and to post a $500 bond as security for full compliance with the order.

Apparently, trucking and dumping continued. In November, 1968, Robert Coleman, then the Director of the Environmental Health Division, Oakland County Health Department, made a sworn statement in support of the citizen lawsuit against Dorsey and Ford. In his November, 1968 statement he stated that he witnessed violations in June, 1968. He stated that "deep pits have been excavated for disposal of this industrial waste and there is a possibility that the underground water supply may become contaminated and also a possibility of fire, all to the detriment of the health of the surrounding community."

Finally, in 1971, Rose Township responded to the residents' concerns and took legal action. The action was brought in accordance with provisions of the Michigan Environmental Protection Act Act 127, P.A. of 1970) which allows any person or organization to sue any other person or organization in order to protect natural resources from pollution, impairment or destruction. The Township's court case stated that Leonard Dorsey and Tucker Ford "have and are causing or allowing the use of their properties in such a manner as to pollute, impair, or destroy the air, water, or other natural resources" of Rose Township. The threat to health and contamination of the water table was referenced. Robert Coleman, Director of the Environmental Health Division, Oakland County Health Department, submitted an affidavit similar to his earlier statement. In May, 1971 a temporary restraining order was issued pending a hearing.

Activities which took place after the court orders have been reported by Township and state conservation officials. Apparently, Leonard Dorsey and Tucker Ford moved the steel barrels which were visible from the road to some back areas of the property where they were less noticeable. Some barrels may have been destroyed, emptied, or buried. Trucking to the site was stopped. In short, the nuisance factors related to the operation were abated, and further legal action was not taken. Residents who came upon the property in the course of hunting and some officials knew the barrels were still on the property. The dumping diminished, however, and responsibilities for following up on the court orders were not clear.

Some officials in the Michigan Department of Natural Resources were aware of the dumping activity and took pictures at the site. In the early 1970's, however, solid waste was the responsibility of the Michigan Department of Public Health and county health agencies. No state enforcement action was initiated.

Although a few residents in Springfield Township were aware of some dumping at the Shindler Road site, there was no general knowledge or cocern about a midnight trucking operation. It was known that Mr. Nickson, the property owner, fixed automobiles and handled miscellaneous parts. Although some barrels were visible at the site, no new homes had been constructed on Shindler Road and there were no close neighbors.

Claude Trim, Township Supervisor from 1970-1974, (now State Representative) watched the course of the legal action in Rose Township. Realizing that the Shindler Road dump site was similar to the DeMode Road site in Rose Township, Mr. Trim and other Township officials were waiting to see if Rose Township's legal action was effective.

In July, 1971, Robert Coleman, Oakland County Environmental Health Department Director issued a certified letter to Joseph Nickson, owner of the Shindler Road dump site, requiring corrective action. The letter indicated that Mr. Nickson first stated receiving barrels from the nearby Marlowe Landfill in 1966. Disposal of the barrels, based upon information from Mr. Nickson and observations of the Health Department, had consisted of draining the barrel's liquid contents into an excavated pit, a low area, or onto the ground surface. The dumping of the liquid wastes into low areas allowed for materials to be flushed into water courses during wet weather. The letter continued:

> "Some of the waste chemicals and other debris lie upon the ground surface and the nature and the degree of the resulting land degradation and spoilage can only be guessed at. This department honestly believes that there has been great damage to and contamination of the ground, in and on those areas receiving these wastes."

Mr. Coleman's 1971 letter included the following requirements:

"A. You must immediately cease receiving any more waste materials of any nature for disposal on your property.

B. All liquid wastes must be pumped out of the low lying areas by a state licensed hauler of liquid wastes. The materials must be disposed of in an approved manner. Enclosed is a list of licensed haulers. Barrels still containing liquid wastes must likewise be hauled away.

C. Barrels which are presently empty may still be sold for salvage.

D. Barrels containing solid...wastes may be disposed of in a shallow pit or the high portion of your property and covered with three or four feet of earth. Since these waste chemicals could be highly toxic, their disposal site should be properly marked to avoid the possibility of future exposure or harm.

E. Any buyer of this land should be informed that a substantial amount of liquid wastes (oils, thinners, etc.) have been disposed of, in low lying areas as well as the fact that barrels of unidentified chemicals have also been buried onsite."

Compliance within 60 days was required. Copies of the letter were sent to the Township Supervisor, the Prosecuting Attorney, and the Michigan Department of Public Health. No significant cleanup followed the issuance of the letter.

A certified letter was also sent to Leonard Dorsey, the Rose Township toxic waste site property owner. The letter from the County Health Department stated that improvements had been made, since there were fewer steel barrels and no evidence of additional wastes being received. The letter restated the 1971 Circuit Court requirements. The letter concluded with the statement, "What you have permitted could have serious and long-lasting harmful effects upon future landowners and nearby property owners. Any future owner should be informed of the fact that these wastes have been permitted to be disposed of on your property. Such wastes could cause, under certain situations, flammable conditions and could generate toxic materials capable of causing sickness. These facts should be known." It was known that the dumping of barrels had stopped in 1971, and no further legal action was taken.

When asked why enforcement of the two illegal dump sites was not pursued, government officials point to several factors. These factors are listed below to provide additional historical perspective -- not to defend the actions of agencies and officials.

First, public consciousness and concern about toxic chemicals was not present. Although Rose Township residents complained frequently, nuisance and annoyance, rather than groundwater threats, was the dominant concern. Second, agency responsibility for legal action was unclear. Although the Oakland County Health Department certainly was able to pursue some legal action, there was no specific statute giving it clear responsibility for overall public health protection. The Michigan Public Health Code did not become effective until 1978, adding a very important authority to state and local health departments for responding to imminent dangers. Although the Michigan Department of Public Health was responsible for landfill licensing, laws were not clear on responsibilities for illegal dumping.

An additional factor is the rural lifestyle of the 1960's. Minding one's own business was the accepted mode. Unless an obvious and direct threat to the public were known, officials typically would not take strong action to investigate actions on private property. At the township level of government, officials in both townships were only involved on a part-time basis and records of citizen complaints or the efforts of officials to address the complaints were not always kept on file.

Similar illegal dump sites found today, of course, would (and have) received a different response. The Michigan Department of Natural Resources has a "Pollution Emergency Alerting System" (PEAS) with a toll-free telephone number. When barrels with unknown materials are found, citizens and officials are encouraged to telephone the emergency number. Follow-up will be undertaken to determine if hazards or environmental threats are present.

In 1978, the Michigan Public Health Code became law. The Public Health Code is a comprehensive statement of legal authority of the Michigan Department of Public Health and county health departments. Prior to 1978, powers had been dispersed in many different statutes. The Public Health Code, written in modern language, clearly gave the state and county health agencies the power to use many different remedies to reduce and eliminate public health threats. Under the Public Health Code, health agencies must respond if a determination is made that there is imminent danger to public health.

In 1979, the Michigan legislature enacted the Hazardous Waste Management Act, a law intended to reduce the problems of toxic and hazardous waste disposal. In order to provide citizens with necessary environmental and health protection, businesses which generate hazardous wastes must obtain approvals from the Michigan Department of Natural Resources. Hazardous wastes are "tracked" from their place of origin to disposal sites. Hazardous waste disposal facilities must be licensed and meet standards of the Michigan Department of Natural Resources. County health departments may be certified to assist in the administration and enforcment of the law. Hopefully, this new law will provide for the necessary hazardous waste disposal facilities and reduce threats from illegal disposal in rural sites.

RE-DISCOVERY OF THE TOXIC WASTE SITES: JANUARY, 1978 - SEPTEMBER, 1979

The rediscovery of the Rose and Springfield Township toxic waste sites spans the months between January, 1978 and September, 1979. In January, 1978, a Springfield Township resident raised the issue with Supervisor Collin Walls who then contacted the Oakland County Health Division (formerly the Health Department). On September 12, 1979, the Toxic Substance Control Commission (TSCC) in Lansing declared the State of Michigan's first "toxic substance emergency." Between these two events, a series of initial tests followed by news media coverage raised serious concerns and questions about groundwater contamination.

Activity was initiated when, on January 4, 1978, a property owner on Ormond Road, Springfield Township (near Shindler Road) showed to the Springfield Township Board the 1971 cease and desist order sent to Joseph Nickson by Robert Coleman, Oakland County Health Department. The next day, Supervisor Collin Walls contacted the Oakland County Health Division. The Health Division did not find any evidence of a problem at the site. In the early spring of 1979 (a year later), Mr. Walls received a telephone call from another resident who was concerned about the Nickson property. Supervisor Walls again contacted the Oakland County Health Division to obtain information and a response. A reqest to investigate the situation was also made by State Representative Claude Trim to the County Health Division.

The day following the January 4, 1978 Springfield Township meeting, a Shindler Road resident also contacted the Oakland County Health Division with a complaint about the barrels on the Nickson property and possible health hazards. The resident had become concerned as a result of information presented at the Township Board meeting.

In the spring of 1979, the resident again contacted the Health Division (as did several officials). Robert Long from the Oakland County Health Division then initiated a review of the situation.

The purpose of the first visit to the area was to talk personally with the citizens and obtain information from Township Hall about property ownership in the area. Soon thereafter (April, 1979), the Michigan Department of Natural Resources Conservation Officer responsible for Rose and Springfield Townships obtained permission to view the Shindler Road barrels. Photographs were taken during the site visit. The Conservation Officer informed Robert Long from the Oakland County Health Division that a similar site with barrels was located near DeMode Road in Rose Township.

It was known that it would be difficult to obtain access to the DeMode Road site without a search warrant. In order to obtain a search warrant, evidence of barrels was needed. Robert Long made arrangements to take photographs from a helicopter, confirming the presence of the barrels. Michael Izzo, Rose Township Supervisor, is an attorney with the Oakland County Prosecuting Attorney's Office and provided assistance in obtaining the warrant.

Search warrants for the Rose and Springfield Township sites were authorized in late May, 1979. Soon thereafter, an interagency team including Robert Long from the Oakland County Health Department and several staff persons from the Michigan Department of Natural Resources completed field investigations. Photographs were taken and samples from the barrels and pools of water around the barrels collected. The samples were taken to the Environmental Laboratory of the Michigan Department of Natural Resources for analysis.

Due to a backlog in work at the Environmental Laboratory, complete results were not available until September 10, 1979. By mid-August, however, it was known that significant concentrations of PCB's were present in the barrels. This concern was reported by staff of the Michigan Department of Natural Resources at a meeting organized by the Oakland County Health Division. State elected officials were present at the meeting.

State Representative Claude Trim brought the Shindler Road and DeMode Road toxic waste sites to the attention of the Toxic Substances Control Commission at their August, 1979 meeting. Although the complete results of DNR laboratory tests were not known,the presence of toxic waste at the sites was highlighted.

Although not fully identified until September 10, 1979, the barrels at the Shindler and DeMode Road sites showed a range of toxic and hazardous materials. Some of the samples showed various concentrations of polychlorinated biphenyls (PBBs) which have been used for insulation of electric cables and wires, coolants in eletrical transformers and capacitors, as additives for extreme pressure lubricants, and as coatings in foundry work. PCBs have been found to be cancer-causing in test animals, and are chemically related to the PCB's which caused an agricultural emergency in Michigan in the mid-1970's. Samples also indicated the presence of heavy metals, fuel oil, gasoline, benzene, lub oil, toluene, mineral spirits, and other toxic and hazardous chemicals. The fact that dangerous concentrations of hazardous chemicals were present, and the evidence that some barrels had been emptied into pits or buried, was of great concern to state, county, and local officials.

On August 13, 1979, the Detroit Free Press printed a story titled, "Dump Sites Leak PCB in Oakland: Tests Due." The article was the first notice for many residents and local officials that a problem with toxic chemicals did exist at the Rose and Springfield Township sites. It is unclear from agency staff how newspaper reporters first learned of the toxic chemicals found in the laboratory tests. The article stated:

> "The Michigan Department of Natural Resources will begin tests next week to see if drinking water in two northwest Oakland County townships is contaminated with PCB, a suspected carcinogen.
>
> High levels of the toxic chemical have been found in barrels of industrial wastes at illegal dump sites in Rose and Springfield townships.
>
> Both sites were ordered cleaned up in 1971, but apparently were not.
>
> The barrels have rusted and have leaked their contents into ground water, according to officials. The drums contain or have contained, paint, paint residue, or other industrial wastes.
>
> All the chemicals are believed to have come from auto plants.
>
> "There may be as many as 2,000 drums on each site," said a water quality specialist with the natural resources department.
>
> The specialist, Peter Ollila, and other members of a state "Emergency Response Team" and Oakland County Health Department investigators have been trying since May to determine what, if any, health hazards may be facing area residents because of the chemicals on the dump property.
>
> "We know there is a probable contamination of (drinking water)", Ollila said late last week. "I just don't think we have enough data, though, to say how much of a health hazard there might be."
>
> PCBs, or polychlorinated biphenyls, are a suspected carcinogen in humans. A state toxic specialist said PCB has been found to cause cancer in more than one animal study and that it has caused birth defects in chickens given the chemical in their drinking water.

> PCB was banned from manufacture in Michigan in 1975. The U.S. Food and Drug Administration has given health warnings on eating Great Lakes salmon or trout with PCB levels above five parts per million. It currently is considering a proposal to lower the maximum PCB level to two parts per million..."

The article continued with a summary of the early history surrounding the toxic waste sites, and an explanation of proposed drinking water testing. Other articles followed in other newspapers. The Michigan Department of Natural Resources did not issue a press release; instead staff talked with reporters and provided information when contacted.

On August 16, 1979 and again on August 29, 1979, the Michigan Department of Natural Resources, with assistance from the Oakland County Health Division, took well water samples from residents near the Rose and Springfield Township toxic waste sites. The purposes of the testing were to determine whether the pollutants had reached residential water wells and to take a first step to determine whether groundwater was contaminated. At the time, it was the practice of the Michigan Department of Natural Resources to undertake residential water well sampling when involved in a pollution problem. (If new toxic waste sites are found today, the sampling would be most likely directed by the Michigan Department of Public Health, working in cooperation with the County Health Department.) Following the two rounds of water well testing by the Michigan Department of Natural Resources, the Michigan Department of Public Health assumed responsibility for performing drinking water tests. Collection of the samples and notification to residents of the results of their water well tests were carried out by the Oakland County Health Division on all rounds of testing.

In the first round of residential water well testing 12 homes in Rose Township and 14 homes in Springfield Township were tested. The tests performed on the well-water supplies were for the following compounds: polychlorinated biphenyls (PCB), trichloroethylene (TCE), perchloroethylene (PCE), oil, diethylxylphthalates (DEHP), phenol, cyanides, cadmium, chromium, copper, iron, nickel, lead, and zinc. Tests were also run for acidity, total solids, and total organic carbon.

The test results were made available to residents via letter when the testing was completed approximately three weeks later. No PCB was found in the water supplies, even though it was found in barrels at the toxic waste sites. Trace amounts of TCE and PCE were found in one Rose Township well and nine Springfield Township wells. Eight of the ten wells with TCE and PCE had concentrations less than 10-parts-per-billion, which was the "long term" drinking water guideline suggested by the U.S. Environmental Protection

Agency. Lead levels slightly higher than the accepted drinking water standard of 50 parts-per-billion were found in three wells. DEHP, for which no standards have been developed, showed varying levels. Some phenol which merited further investigation was also found. In brief, the tests found trace levels that warranted retesting but were not necessarily cause for major alarm. As reported to residents in the special newsletter prepared by the Oakland County Health Division and the Michigan Department of Public Health:

> "single tests are not conclusive. Their value is to signal caution, not alarm. A series of tests on individual wells, with cross-correlation between those tests and with the tests from all other homes, will produce a pattern that can be useful in arriving at some conclusions."

Personal telephone calls were made by Oakland County Health Division staff to the ten residences with some contamination, and letters followed soon thereafter. The telephone calls were completed before an official news release was made or newsletters distributed. The use of bottled water was recommended until such time as further tests could be completed.

On August 29, 1979, a second round of water well testing for homes within a 1/2 mile radius of the sites was completed. The re-testing included the original 26 wells, together with an additional 40 homes. The additional testing was undertaken to gain more information concerning the extent of th TCE and PCE contamination. In late September, the results of the second round of testing were reported. The essential finding was the absence of TCE and PCE which had been previously detected. Lead, cadmium, PCE, and TCE were absent from all wells. As reported by the special newsletter of the State and Oakland County Health Departments, fluctuation in chemical leaching (due to different rainfall or hydrologic conditions) may have been a reason for the change. A second explanation is the fact that laboratory equipment has a certain inborn error of reproducibility.

NOTE: Sampling of drinking water from residential wells is different from the installation and sampling of special monitoring wells installed near waste sites to determine pollution levels at the site.

On September 6, 1979, the Davisburg and Andersonville Elementary Schools were sampled and the analysis was conducted by the Michigan Department of Public Health. No evidence of contamination was found and this information was relayed to school officials and local agencies. Water wells in several camps and campgrounds in the area were also tested.

Among the 67 samples of the second round, however, trace amounts of PCB (0.2 ppb and 0.1 ppb) were found in two wells and trace levels of phenol were found in one well. The type of PCB found was A1260, a relatively rare form of PCB. Because of the rarity of this form and the small amounts, it is not certain that the finding is anything more than an inborn error or sensitivity of the laboratory equipment. The phenol level in the one well was 45 ppb, far below the EPA water quality condition of 3400 mg/liter. The second round of testing indicated the need for continuing tests to answer questions about potential drinking water contamination.

When the Detroit Free Press article was published on August 13, Rose and Springfield Township officials began receiving calls and visits from residents who were scared, angry, anxious or distressed. The newspaper article initiated a chain of questions and concerns; Township officials had little information to respond accurately.

In Springfield Township, Supervisor Collin Wall contacted as many state and county officials as possible in order to learn about potential health and environmental dangers from the Springfield sites. Between August 14 and September 12, Supervisor Walls personally contacted at least 30 county, regional, state and federal officials to obtain information about the problem, possible cleanup activities, and sources of funds. Local officials in Rose and White Lake Townships were also contacted. Contacts were also made with several different private chemical laboratories and well drillers to obtain information about testing costs and techniques. The effort involved two weeks of non-stop discussions and communications (August 13 - September 1) and nearly full time involvement for the first two weeks in September.

Rose Township officials were also concerned, and tried to obtain answers to residents' questions. Although Rose Township Hall is only open 1/2 day per week, the Township Clerk and Treasurer maintain full-time office hours at their homes. In addition, the Township Supervisor is available on evenings and weekends. Several officials, including Supervisor Michael Izzo, Treasurer Joyce Slaughter, and Clerk, Dorothy Gibbard, telephoned state and county offices numerous times to keep informed of current happenings and in turn kept in touch with residents.

The case history of the DeMode Road toxic waste site in Rose Township was complicated by issues surrounding the expansion of the Marlowe Landfill. The Marlowe Landfill is located about three to four miles southeast of the DeMode Road toxic waste site, and has been in operation for many years. The Marlowe Landfill has operated under license from the Michigan Department of Natural Resources, and has handled a large percent of the solid waste from northwestern Oakland County townships. Mr. Marlowe, owner of the Landfill, requested Rose Township officials to grant a zoning variance in August, 1979 so that the operation could be expanded from 23 acres to almost 200 acres.

The Rose Township Zoning Board of Appeals granted the request for the zoning variance the day before the toxic chemicals at the DeMode Road site became public through newspaper articles. A group of residents living near the Marlowe Landfill called the "Concerned Citizens for Rose Towship," immediately began protesting the Board of Appeals decision. Their arguments went beyond nuisance concerns to embrace the entire toxic waste concern. Mentioning the recent discoveries of the illegal dumps, the residents raised questions about materials in the Marlowe Landfill. "Why should we assume that Marlowe's holds none of those toxins when other dumps all around us do?" one woman was quoted as saying.

The citizen group began a recall campaign to remove Township Board members from office. Their complaint was that Township officials were not protecting the interests of citizens of the community, especially because the request for the zoning variance had been granted. The recall petition was later abandoned.

Following additional meetings and the consideration of additional materials, the Zoning Board of Appeals recommended their action in granting the variance.

Meanwhile, state, county and local agencies and officals were working to develop a response plan to address environmental and public health concerns related to the toxic waste sites. Two meetings were held to formulate an action plan. On August 22, 1979, at the request of Representative Claude Trim, one meeting was held. Representative Trim had been requested by County Commissioner Bob Gorsline and Supervisor Walls to set it up. The second meeting was held on August 30, 1979, at the request of staff from the Michigan Department of Natural Resources, Oil and Hazardous Materials Control Section.

Participating agencies agreed on the following responsibilities:

DNR - Oil & Hazardous Materials Control:

- Coordinate all aspects of the project.
- Maintain a file on all records and correspondence.
- Collect additional well samples, if necessary, to determine area of groundwater contamination.
- Prepare a review of alternative clean-up and disposal methods, with an estimated cost breakdown for each. (To be completed by September 7, 1979).
- Attempt to secure funding for analysis and proceed with collection of a sample adequate for complete characterization of wastes.
- Locate a suitable storage site for interim storage of PCB-contaminated liquids.

DNR - Toxic Materials Control

- Provide toxicity information for substances found at the drum disposal sites or in well water sample. (Michigan Department of Public Health and the Oakland County Health Division will interpret public health significance).
- Assist in determining additional parameters to be analyzed for in the future samples.
- Assist in the review of water treatment proposals for any groundwater cleanup program.
- Serve as liaison between the Department of Natural Resources and the Toxic Substance Control Commission.

DNR - Groundwater Compliance

- Assist in the gathering of well logs from the Geological Survey Division.
- Prepare a proposal for a groundwater investigation, including a determinatin of groundwater direction, contaminants present, volume of soil contaminated, and cost. This will be prepared by September 7, 1979.

- Work with the Michigan Department of Public Health on determining a possible location for a community water supply.

- Organize all data from samples collected by the DNR, in easily-readable form.

DNR - Resource Recovery Section

- Provide approval of landfills which can receive the solid waste.

- Provide geological expertise as may be requested.

- Provide Resource Recovery Division file information.

DNR - Environmental Enforcement Section:

- Investigate the nature of the activities which resulted in the existence of the sites.

- Make arrangements for aerial photography as may be necessary.

- Determine if any criminal or civil litigation is appropriate.

DNR - Office of Information and Education

- Prepare releases, periodically, as additional information becomes available.

Oakland County Health Division and Michigan Department of Public Health

- Collect and analyze water supply well samples, as necessary, after a determination of the area of contamination.

- Handle all requests for well sampling.

- Report sample results to affected residents.

- Assist in obtaining past well logs.

- Prepare report on feasibility of various water supply alternatives for the affected area.

- By September 7, 1979, prepare preliminary estimates for cost of a well to serve the area.
- Prepare a newsletter by September 5, 1979, for persons in affected area, explaining action being initiated and a general overview of the problem.
- Prepare subsequent newsletters, as indicated.
- Provide interpretation of the medical and public health significance of contaminants in the well water supply.

Springfield Township Supervisor

- Caution building permit applicants of the risks involved, and contact the Oakland County Health Division if it becomes necessary to issue the permits.
- Assist in locating a PCB storage site.
- Make contact with Mrs. Nickson if it becomes necessary to enter her property.
- Provide maps and aerial photos (early 1970's) and information in the Township's files.
- Provide property owners homes and addresses.
- Assist in obtaining money to clean up site.

After the declaration of the toxic substance emergency on September 12, 1979, coordination and certain communication responsibilities were shifted to the Toxic Substance Control Commission. Many of the agency tasks listed above, however, were in fact carried out by those agencies.

Realizing that the issue of the toxic waste sites would be raised by citizens at the September 5, 1979 Springfield Township Board meeting, Supervisor Collin Walls made arrangements to use a County park facility, the Springfield Oaks Youth Activities Center, for the meeting. State and county agency representatives were invited to the meeting to insure that some of the resident's questions could be answered. Rose Township and White Lake Township officials were notified of the meeting and were invited to attend and notify citizens of the meeting. Nearly 200 citizens and officials attended the Board Meeting. Representatives from the Michigan Department of Natural Resources, the Michigan Department of Public Health, the Oakland County Health Department, and the Toxic Substances Control Commission were present. Elected state, county, and local officials also attended.

The agencies present briefly described what was known about the extent of the toxic waste problem and agency responsibilities. The Oakland County Health Division distributed copies of a special newsletter on the toxic waste situation and encouraged residents to sign up to receive future copies in the mail (a supply was also left at the Springfield Township Office). Representatives from the Oakland County Health Division and from the Michigan Department of Natural Resources played a major role in responding to questions. Residents asked questions, such as the following:

Question:	I feel that possibly the contamination has reached as far as 1-1/2 miles north of the Shindler Road dump site. Is there any way I can find out? I have three small kids.
DNR Response:	When faced with a problem, it is never possible to say with certainty how far the contaminants have traveled in the water. Wells closest to the dump site and the wells at the outer edge were tested. Some were contaminated, so the area was expanded and more testing done. The results of the second round of testing are not known. They are analyzing the data carefully to see if the testing area needs to be expanded.
Question:	Why won't the Oakland County Health Division test my water? Why is it necessary to go to a private laboratory when the County should handle it? Why aren't other citizens notified of the availability of private laboratories for testing?
DNR Response:	The State and County Health departments will be sampling any well they feel may be contaminated. They have received requests from people that are long distances from the source. It is important to put resources in the highest priority places first. They are concentrating on the homes closest to the sites and expanding from there.

Question: There are 2,000 barrels leaking out because they are rotting away. I realize you do not know what to do with them. I'm wondering why there is not a truck at Shindler Road removing the chemicals before they go further into the dirt and into wells. Why?

DNR Response: DNR is working on arrangements for the removal of materials. They are contacting contractors who specialize in this kind of matter. DNR, at the present time, does not have money so that contractors could be paid to remove the material. They have asked every source for special funds. They are working on this at the Federal, State, and local levels. That is the only answer they can give. We can't spend money we do not have.

Citizen Comment: We live on that street. People are building homes on that street. We have been informed time and time again that you do not have money to remove the chemicals down there. We're sick of hearing "we do not have money to remove the chemicals." We heard that in 1965, 1971, and 1977. It's always the same answer. We pay taxes for the acreage we want to have. We have it and want to be able to drink the water. I'm tired of hearing we do not have the money."
(no response)

Citizen Comment: This is a situation that is not isolated to Shindler Road and maybe not even to Springfield Township. The more we find out about it, you can see a truck going down the road and think it is dropping oil, but it could be dropping these types of chemicals. I think that the problem may or may not be identifiable by one or two tests. The chemical concentrations can change. It could affect a lot more people than those on Shindler Road or in Springfield or Rose Township. We ask for help and assistance from officials and those gathered here in answering questions we have prepared, some having to do with what has been done to date and what will be done. We would like to know the plan of action and timing on what will be done to clean up the dump and stop the spread of contamination and provide safe and clean water on a permanent basis. Resolve the questions about health that may come up based on

> the contents of the water and make sure the good name of Davisburg and Springfield Township is preserved once you settle the problem and the water is cleaned up. It is the responsibility of the press to follow this case through and make sure it is all blown clear and the good name of the community is not affected.
>
> \- Excerpts from the record of comments
> Springfield Township Board
> September 5, 1979

Many more questions about possible health effects and agency actions were raised and answered by the officials present. Mr. Walls closed the public discussion at 11:00 p.m. and gave residents the telephone number of DNR in Lansing and the Oakland County Health Division in Pontiac.

As reflected by the citizen comments and questions, residents were searching for an agency response which would assure them of clean water or answer their great concerns about the health of their families. Since little site investigation and only one round of water testing had been done, state and county representatives could say little. The frustrations on all sides were compounded by the unanswered questions concerning the lack of cleanup in the early 1970's. The answers given by agency staff satisfied few residents, as evidenced by the responses at the meeting. The answers were, however, the only statements that could be made without the study of the site and funds for cleanup.

Although frustrating, the meeting did allow residents a chance to air concerns and personally talk with state and county staff and officials working on the problem. Without the meeting, Township officials suspect that events would have been confused and residents totally without information. The meeting laid the basis for the declaration of the toxic emergency by the Toxic Substance Control Commission on September 12, 1979.

DECLARATION OF THE TOXIC SUBSTANCE EMERGENCY AND AGENCY RESPONSES: SEPTEMBER, 1979 - DECEMBER, 1981

On September 12, 1979, a special meeting of the Toxic Substance Control Commission, was held in Lansing to consider the problem in Rose and Springfield Township. Based upon the potential (not proven) threat to health and the environment, and the strong expression of concern by residents and officials, the State's first toxic substance emergency was declared.

The Toxic Substance Control Commission (TSCC) was established by Act 116, P.A. of 1978 as an autonomous organization in the Michigan Department of Management and Budget. The Commission was established for the purpose of providing a strong and rapid state response to toxic substance threats, and emerged from concerns that disasters such as the PBB agricultural emergency in the mid-1970's could and should be avoided in the future.

The Commission membership includes seven citizens appointed by the Governor who are scientists, doctors, or other technical experts knowledgeable about toxic chemicals. The directors of the Michigan Department of Agriculture, Michigan Department of Natural Resources, and Michigan Department of Public Health serve as non-voting members.

The responsibility of the Toxic Substance Control Commission is to investigate toxic substance problems, to alert the Governor and legislature when a potential toxic substance problem has been identified, and to coordinate, assist, and monitor cleanup activities of state agencies. A toxic substance emergency can be declared upon a vote of 2/3 of the voting members. When a toxic substance emergency is declared, the Commission assumes broad powers to direct agency activities, including issuing orders to agencies or individuals, and directing the disposal of a toxic substance. A toxic substance emergency ceases to exist 60 days after its declaration. Upon a 2/3 vote of the voting members and concurrence of the Governor, a toxic substance emergency may be continued for periods not to exceed 60 days.

The declaration of the emergency was urged by legislators, concerned citizens, state department officials, and other public officials. A letter from Governor Milliken supported the emergency action, as did letters from elected state officials who stated that the sites should have been cleaned up in the early 1979's. Department of Natural Resources staff indicated that resposible parties with assets to cleanup the sites had not been located and that rapid cleanup was needed to stem contamination of groundwater. A DNR work plan for the first phase of the cleanup involving recontaining and storing the barrels was explained at the meeting (cost between $200,000 and $300,000). Michigan Department of Public Health officials reported that the Oakland County Health Division reported plans to notify families with contaminated water, and plans to develop alternative water supplies. Other officials and citizens then expressed their concerns about a situation directly affecting their lives and health, and requested action.

The Commission, after some debate, voted 6 to 1 to establish the toxic substance emergency in Oakland County. Reflecting reservations in establishing the emergency, one Commissioner said, "The...materials found are enough to raise eyebrows...but not enough to have people falling down. As a scientist I see no great potential harm in this case." Another Commissioner was reported to have said, "Science that is so far presented doesn't put you in a great risk category." Other Commissioners noted that the incident was unique because the dump sites had been known for ten years. The Commissioners concluded that there was little immediate danger to the public health from the small amounts of toxic chemicals found in the wells, but voted for the order to facilitate the cleanup operation.

In signing the order declaring the emergency, Governor Milliken said, "I am convinced immediate action is needed...I think we have an opportunity...to take action before a toxic waste problem escalates to a public health emergency with irreversible impacts."

As part of the special TSCC meeting on September 12, 1979, a special motion was adopted establishing a working committee to develop criteria for setting priorities for cleanup of waste sites with industrial or hazardous chemicals. The motion recognized that the Rose and Springfield Township emergency was declared without evidence of health threats greater than other known toxic waste sites in the State. As an outgrowth of this concern, the Michigan Department of Natural Resources published a listing of all known groundwater contamination sites in 1980. Work on a waste site cleanup prioritization model is ongoing through an interagency work group chaired by the Michigan Department of Natural Resources.

According to many officials concerned about the Rose and Springfield Township cleanup, the primary reason for declaring an emergency was to obtain funds for cleanup. It was not generally understood that the TSCC emergency fund totalled only $100,000 ($50,000 of the emergency funds were eventually used, and then repaid).

Following the declaration of the toxic substance emergency for the Oakland County sites, activities of the TSCC included the following:

1. Development of a response plan, outlining a timetable for state agencies to undertake specific tasks.
2. Oversight and monitoring of state agency activities, including steps such as review of draft contracts, review of status reports, and initiation of coordination meetings.
3. Communication with citizens and the press concerning the status of cleanup activities.

Beginning with the declaration of the emergency, citizen inquiries and questions were answered (or referred to appropriate persons), citizens were provided a forum to speak and raise concerns at the regular TSCC meetings, and TSCC staff participated in site visits or meetings to discuss progress on cleanup.

The emergency order called for the following agency actions:

1. The Department of Natural Resources (DNR) to isolate and contain the concentrated toxic substances.
2. The DNR to produce plans for hydrogeologic study.
3. The Michigan Department of Public Health (MDPH), in cooperation with appropriate local units of government to:
    - Develop a statistically-valid water sampling program;
    - Insure an immediate interim water supply;
    - Develop an acute/chronic-health-effect risk assessment for relevant toxic contaminants found in the water supplies;
    - Orient the medical profession serving the affected areas to the potential human health hazards associated with exposure to relevant toxic contaminants.
4. DNR and MDPH, in cooperatiom with local units of government, to prepare recommendations for providing permanent water supplies for those persons affected.
5. Michigan Department of Agriculture (MDA) to prepare a report which evaluates the effect of the toxic substances on agricultural animals or products raised in the area.
6. The Department of Mangement and Budget (DMB) to insure the expedited release of funds to carry on the activities listed above.

Specific tasks for township officials were not identified. The order, in effect, centralized coordination and certain communication responsibilities with the cleanup with TSCC staff. It was commonly understood that the Oakland County Health Division would continue to serve as the primary source of information for residents.

At the direction of the TSCC, the Michigan Department of Natural Resources began cleanup work at the Shindler Road site in Springfield Township. Leaking barrels containing liquids were repackaged in 85-gallon steel drums. Cleanup activities at both sites proceeded through mid-October until the contractor discontinued work because he was not paid for work completed. The TSCC released $50,000 from its emergency fund for cleanup expenses (repaid in December, 1979 by a special legislative appropriation). Cleanup resumed, and state officials continued their efforts to obtain funds.

In mid-October, Representative Claude Trim introduced a supplemental appropriations bill requesting $3.9 million for the toxic waste cleanup. (This cost estimate included the cost for barrel removal, removal of contaminated soil, and all other possible cleanup tasks.) Senator Jerome Hart later introduced a parallel bill in the Senate requesting a $1.2 million appropriation. Representative Trim then joined forces with Senator Hart to pass the $1.2 million funding.

Work crew activity stopped again in mid-November because of non-payment. By this time, extensive drum excavation at both dumpsites had been completed. Disturbed, contaminated soil and recovered barrels were exposed to rain and weathering and ungraded excavations were trapping rainwater. The TSCC redeclared the emergency at its November 29, 1979 meeting on the basis that a more potentially hazardous situation existed than at the time of the original declaration as a result of the extensive soil disturbances. The second emergency declaration was also made to facilitate acquisition of necessary funds.

Finally, the Legislature financed the special appropriation of $1,222,000 (Act 186, P.A. of 1979) and Governor Milliken signed the bill on December 20, 1979. An additional $50,000 was restored to the TSCC emergency fund. All of the funds were directed toward cleanup activities, -- not agency administrative costs. With funding assured, site cleanup activities resumed.

In the sections which follow, the activities of state agencies and local officials are highlighted, based upon written records and interviews with agency representatives.

Michigan Department of Natural Resources

The activities of the Michigan Department of Natural Resources following the declaration of the toxic emergency focused on site cleanup. Hydrogeologic studies to determine the extent of soil and groundwater contamination were initiated, and excavation and removal of the drums completed. Some surface water sampling was also initiated.

By February, 1980, all drums had been excavated from both sites. An estimated 1,500 barrels were recovered at the Springfield Township site and 5,000 barrels at the Rose Township site. At each site, drums were sorted and labeled in preparation for final removal.

Sampling of the 6,500 barrels at the two sites indicated that about 50% of the materials contained sufficient quantities of PCB to require disposal in a chemically-secure landfill approved by the U.S. Environmental Protection Agency. Staff from the TSCC and the DNR inspected two such landfills, and selected a site in Alabama due to superior operational controls and geologic characteristics.

Some of the liquid wastes contained high concentrations of PCBs (over 500 ppm). Federal regulations require disposal at incinerators licensed by the U.S. Environmental Protection Agency. Since no PCB incinerators have been approved for licensing in the United States, the wastes have been stored in a southeastern Michigan location until incineration can be accomplished.

A special problem with low flashpoints was found with some of the other liquid wastes (approximately 400 barrels). Before disposal, it was necessary to distill off the flammable solvents by a special distillation process. This unexpected process delayed the drum removal program and added to the expense of the undertaking. The drum removal operation was completed in May, 1980.

Although the removal of the barrels reduced the health hazards at the site, it did not resolve concerns about possible soils and groundwater contamination. In order to determine the extent and range of soil and groundwater contamination associated with the two sites, the first phase of a hydrogeological survey was outlined by the Michigan Department of Natural Resources. The two sites are geologically complex, and the location and direction of groundwater flow could not be estimated from available data.

Following competitive bidding for engineering services, and construction of an access road at the Rose Towship site, the hydrogeological study was initiated in June, 1980. Work at each site included observation wells, and collection of soil and groundwater samples for toxic chemical analysis. The results of the Phase I study, as reported in October, 1981, indicate the following:

Springfield Township Site (selected findings):

- The subsurface material at the site consists of sand and silt. There appear to be no barriers to the vertical migration of contaminants from the surface of the ground to the aquifer.

- Depth to groundwater varies between 80 and 105 feet below the surface, depending on the topography.

- The highest concentration of PCBs occurs at a depth of five feet. The greatest depth at which any PCBs occur is 25 feet. The highest concentrations of DDT, DDD, DDE occur at 10-15 feet depths. The greatest depths for these three chemicals is 25 feet. Traces of xylene, toluene, and TCE occur as deep as 25 feet.

- Preliminary sampling and analysis of groundwater at the top of the aquifer indicates some toxic chemicals, including phenols, dichloroethane, trichloroethane (TCE), lead, zinc, and iron.

- Surface water sampling in the fall of 1979 was inconclusive; it is not known if pollutants from the site have migrated into surface waters (the analysis was completed by DNR staff).

Rose Township Site (selected findings):

- The subsurface material at the site consists of sand, sand and gravel, layers of silt, and some clays. The silt and clay layers are not thick and do not appear to be a barrier to contaminant migration.

- Depth to groundwater varies between 15 and 45 feet below the surface depending on the topography.

- The highest concentration of PCBs occurs at the surface, with 25 feet being the greatest depth. The highest concentration of phenols is at the surface, with 30 feet being the greatest depth. Trace concentrations of xylene, toluene, benzene, TCE, PCE, methyl ethyl ketone, and ethyl benzene occur in various combinations as deep as 25 feet.

- Preliminary sampling of groundwater at the sites indicates the presence of certain toxic materials. PCB was detected in several observation wells, and resampling has been done to confirm the finding. PCB was found to be associated with soil particulates in the water samples. Filtered samples did not show PCBs.

- Surface water sampling in the fall of 1979 was inconclusive; it is not known if pollutants from the site have migrated into surface waters.

Based on the Phase I study, the extent of the contamination of soils and groundwater is not known. It is known that individual spots at the site have high concentrations of PCBs, but the extent of such "hot spots" is not known. The cost of containment or cleanup will not be known until further soil testing and studies of groundwater flow are conducted. The Phase II study to address these problems will be initiated in Spring, 1982.

The total barrel removal, disposal, and/or storage efforts, together with the two hydrogeologic studies (one in progress) have cost approximately $1 million. Approximately $200,000 of the initial legislative appropriation remains for containment or cleanup.

In addition to site cleanup and hydrogeologic studies, the Michigan Department of Natural Resources sampled surface water in lakes and wetlands near the two sites (White Lake, Duck Lake, Big Lake, Buckhorn Lake, and Chase Lake were included). In most places, surface water was sampled only once, and the results were inconclusive. As part of a study of Big Lake (Springfield Township) being conducted by the DNR for the Big Lake Improvement Board, fish samples and sediment samples will be taken and analyzed for toxic chemicals. The toxic chemical analysis is a standard test for lake improvement studies funded through the U.S. Environmental Protection Agency and the Michigan Department of Natural Resources, but will be useful to Springfield Township residents. The results should be available in 1982. State agencies do not have plans to sample fish, sediments, or surface waters in other lakes near the two sites.

Environmental enforcement is an ongoing responsibility of the Michigan Department of Natural Resources. In August, 1979 when it became known that the barrels in Rose and Springfield Townships contained toxic chemicals, DNR initiated an investigation to determine responsible parties. Although the names of the haulers as well as the companies producing the barrels are known, there is insufficient evidence for a lawsuit against any of the parties. As a result, the two toxic waste sites are considered to be "orphaned" sites.

Michigan Department of Agriculture

The Michigan Department of Agriculture initiated an agricultural products survey and related laboratory testing in early September, 1979 when it was informed about the toxic water sites in Rose and Springfield Townships. The following activities were carried out:

1. Door-to-door survey of residents: In early September, 1979, Department of Agriculture staff completed a door-to-door survey of all households within approximately 2 miles of the two toxic waste sites. Questions about livestock, animals, sources of water and feed for animals, crops, and agricultural chemicals were asked on a written questionnaire. Copies of the questionnaire were left at the door when residents were not at home.

2. Agricultural products sampling near the toxic waste sites:

   Using the questionnaire as a guide, samples of crops and livestock within 1/2 mile of the sites were taken for analysis. Although samples were taken at several locations, emphasis was placed on places in close proximity to the site where the "worst" effects might be found. Soils, peas, peanuts, turnips, cider, cabbage, ground beef, meat from steers, chicken eggs, pork fat, and hog liver were sampled. In addition, swamp water from the DeMode Road site was tested since it is used by livestock for drinking purposes.

3. Dairy farm milk samples: Samples of milk were taken from the six dairy farms located within a 5 mile radius of either toxic waste site. Milk samples were analyzed for lead, cadmium, chromium, and phenols. Analysis of trichloroethylene and perchloroethylene was requested, but the laboratory did not have the methodology for completing such tests. In cooperation with the Michigan Department of Public Health, water well samples were also taken and tested.

No significant problems with any crops or animals were found, either close to the site, or on the dairy farm. Although trace levels of toxic chemicals were found in some crops, the levels found were within health safety standards and not significantly different from similar crops in other areas of the State.

No animals at or near the DeMode Road site exhibited special problems. All of the livestock at the Nickson property (Shindler Road, Springfield Township), however, was initially placed under quarantine. The quarantine was established because the condition of the animals was not known -- not because they were contaminated with toxic chemicals. Tests were eventually completed on all species of livestock and/or products, and only one pig remained under quarantine. (Again, the presence of toxic chemicals in the animal was not known.)

Veterinarians in Rose and Springfield Townships were contacted concerning reported illness or problems with household pets and farm animals. No unusual problems were discovered.

In the process of completing the door-to-door survey, some residents requested testing of backyard vegetables. If the produce was not immediately adjacent to the site or sold for commercial purposes the Department of Agriculture did not complete special tests. In such cases, the cost of the testing exceeds the value of the vegetables.

The results of all sampling (crops and animals) were communicated to owners via letter. If significant levels of toxic materials had been found, personal contacts would have been made by Department of Agriculture staff.

Oakland County Health Division

The major activity of the Oakland County Health Division was the continuation of monthly residential well sampling. Samples were collected and then taken to Lansing for analysis in the laboratories of the Michigan Department of Public Health. The results of all well tests were communicated in writing to residents, with a personal typed letter. The letters were co-signed by the directors of the Oakland County Health Division and State Health Department.

In cooperation with the Michigan Department of Public Health, a determination was made that all residential water supply wells within a radius of 1/2 to 1 mile of either site should be tested. (All wells within 1/2 mile of either site were tested. Beyond the 1/2 mile radius, spot checking occurred.) The County's third round of testing, conducted September 25-28, 1979, was the first to be analyzed under the direction of the Michigan Department of Public Health. Since 186 households were sampled at once, and since the need for information about water supply contamination was great, the Michigan Department of Public Health entered into a contract with a private laboratory in Ann Arbor to complete the analysis. All testing following the round three test of 186 wells was completed by the Michigan Department of Public Health in Lansing. In the round three testing all samples were analyzed for chromium, lead, cadmium, cyanide, phenol, PCE, TCE, diethylhexylphthalate, and PCB. In addition, three samples received special analysis by the Michigan Department of Public Health Laboratory for approximately 150 chemicals (mass scan). The results of the round three tests (received in late October, 1979) indicated that PCE and/or TCE was present at low levels in 21 wells. Thirteen of the 21 were at concentrations less than the previous detection limit of 1.0 parts per billion. The test values ranged from 0.1 ppb to 11 ppb for PCE and 0.1 ppb to 4.2 ppb for TCE. No wells exceeded the 10 ppb interim drinking water limit recommended for TCE by the U.S. Environmental Protection Agency. Three wells exceeded the proposed PCE limit of 2.0 ppb, with readings of 2.5, 2.6, and 11.0 ppb.

If toxic chemicals were not found in a water supply during the first three rounds, tests were not continued. For 29 wells where some level of toxic chemicals had been detected during one of the three tests, however, monthly samples were taken from December, 1979 through June, 1980. A determination was made to stop the monthly sampling when all wells showed no evidence of toxic chemicals for four continuous rounds of testing. Further testing was completed on the 29 wells in August, 1980 (Rose Township) and April, 1981 (Springfield Township) since it was felt that a continuing baseline would be useful.

During this time, staff from the Oakland County Health Division received telephone calls from residents near the toxic waste sites as well as other rural areas. Citizens requested well tests and expressed concerns about PCB and toxic chemicals. Oakland County Health Division staff explained their policy for testing, and in some cases when residents lived within a reasonable distance from the toxic waste sites, added their wells for testing. Requests from local or state officials to test certain wells were honored whenever possible.

When residents lived significantly beyond the 1-mile radius, citizens were given information about private laboratories which could be contacted. Although a comprehensive testing of a water sample for toxic chemicals often costs as much as $2,000, it is possible to test for several specific chemicals (such as PCB, TCE, or PCE) at costs of $60/chemical or less.

Special newsletters were published in September, 1979, November, 1979, February, 1980, and October, 1980 to inform residents about test results and the status of cleanup activities. The newsletter series is continuing and an issue was distributed in March, 1982.

In order to protect public health in view of the uncertainty about toxic chemicals in the water wells, the Oakland County Executive provided bottled water free of charge to all residents whose wells had trace levels of contaminants. On September 13, 1979, the Oakland County Board of Commissioners approved an expenditure of $10,000 for bottled water delivery. The service was contracted through a private water firm.

At first, 5 gallon containers were made available to Springfield Township officials who then obtained water from the Village of Holly. Eligible residents picked up the containers at the Township office. After a short time, at the request of residents, door-to-door delivery of bottled water was made by the County. Residents using bottled water were advised in March, 1980, that they could resume normal use of wells since 4-5 negative results had been obtained. Bottled water, however, was still available to those families if they wished to continue use. In August, 1980 delivery of water was stopped since danger to health was no longer a concern.

During the fall of 1979 the private laboratory which conducted the third round of testing for the Michigan Department of Public Health reported trace levels of TCE in the bottled water being distributed to Oakland County families. The source of this bottled water was found to be the City of Detroit. Following a series of checks and further tests, it was determined in March, 1980 that the test results were errors in laboratory detection methods; trihalomethane, formed during the chlorination process, was the chemical present. Trihalomethane in small amounts does not pose health threats. Regardless, the results of the City of Detroit water testing led to more questions and concerns from residents.

When the first round of water well tests showed trace levels of lead for three households, it was determined that blood-lead tests for children in families would be advisable. Although none of the children showed any symptoms of lead poisoning, the blood tests were viewed as a precautionary measure. Tests were also completed for a family which had moved from one of the homes where the well showed trace levels of lead in 1978., The blood-lead tests in all cases were found to be normal. All future tests showed and absence of lead from all water supply wells and all followup samples of the three wells failed to show a recurrence.

In March, 1981, a public health concern arose in one Springfield Township subdivision located about ten miles from the Shindler Road toxic waste site. Approximately ten families in the subdivision reported abnormal health problems, including seizures in children, which they thought might be related to the toxic waste site.

In response to the concern, the Oakland County Health Division interviewed several families and then sent a mail questionnaire to 158 families for the purpose of identifying the frequency and nature of health problems. The response of the survey was extremely high (65%), probably reflecting resident concerns. Water well samples were taken from the ten households of concern, and a statistical analysis of the health patterns was undertaken. The water samples were negative, indicating no cause for concern. The statistical analysis of the seizure pattern is being completed by a physician at Cornell University with experience in the analysis of such data. Verbal communication with two physicians had indicated that the seizure pattern has no association with drinking water. A written report is pending.

Michigan Department of Public Health

Staff from the Michigan Department of Public Health (MDPH) worked closely with the Oakland County Health Division in designing the well testing program. MDPH also directed the laboratory analysis of the water well samples and provided information on health standards for toxic chemicals.

A task of central importance to the Michigan Department of Public Health was the assessment of risks to health related to the levels of chemicals found in the water samples. Staff from the Michigan Department of Public Health undertook their own evaluation and also requested assistance from the U.S. Environmental Protection Agency. Information on health risks and standards was provided to the Oakland County Health Division for transmittal to residents.

In order to alert practicing physicians to the contamination problem and potential human health effects, a general letter was prepared and sent to physicians in northwest Oakland County.

In September, 1979, the Michigan Department of Public Health worked with county, township, and state officials to identify acceptable options for a long-term alternative water source for the affected area. Options considered included:

- Deepening of existing private wells to reach uncontaminated groundwater;
- Extension of an existing water supply; and
- Community supply well(s) outside the affected area with a distribution system of pipes to individual homes.

In March, 1980, it was determined by MDPH that well analysis data did not support the need for a new water supply for the area. The need for a public water supply, however, could be reevaluated if new studies reveal evidence of contamination.

Springfield Township

From September, 1979 through the present, Springfield Township Supervisor Collin Walls has monitored activities of agencies related to the cleanup in both Rose and Springfield Townships. Because Springfield has a full-time supervisor, Collin Walls often attended meetings in Lansing on behalf of both the Rose and Springfield Township Boards.

Prior to the toxic substance declaration, Collin Walls searched for funds, talking to both County Executive Murphy and the Governor's office. Possible sources examined included Community Development Program funds, Farmers Home Administration funds, U.S. Environmental Protection Agency, the chemical industry, residents, service clubs, and Oakland County.

Following the declaration of the toxic substance emergency, Springfield Township continued to assist and support agency efforts in site investigation and cleanup. Specific activities included:

Assistance with bottled water supply program: The initial stages of the water distribution program were carried out by Springfield Township. With the assistance of County Commissioner Gorsline, the Oakland County Division of Facilities and Operations furnished plastic jugs to the Township. The Township building inspector then filled the jugs with water from the Village of Holly for delivery to residents.

Resident Communication: At every meeting with county and state officials, Collin Walls asked what the Township could do to assist with the cleanup. He continually received calls from citizens, and either obtained the answers or referred the person to the proper agency. The Township was ready to assist with an organized communication effort, but potential township roles were never clarified.

Request for cleanup funds: Collin Walls had been told by several sources that cleanup funds would be obtained through the declaration of a toxic substance emergency. When this proved not to be the case, he worked actively with state elected officials to obtain the necessary funds from the Legislature. On November 9, 1979, a letter was written to Governor Milliken requesting funds. The letter noted that Springfield Township was ready to file suit against the State, asking for removal of the toxic waste in accordance with the intent of the declared toxic substance emergency. Collin Walls then participated in a series of legislative meetings concerning the special appropriations request.

Coordination and communication with state, regional, and county agencies: Collin Walls met periodically with state and county agency representatives and encouraged a cooperative effort in dealing with the toxic waste problem. A statement was made at the November 29, 1979 TSCC meeting encouraging TSCC to improve communications and cooperation.

Property assessment reductions: Since the toxic waste problem was not known prior to December 3, 1978 (tax date), tax relief for Shindler Road residents could not be considered for 1979. For the 1980 assessment year, however, the decision was made to reduce assessments within approximately 1 mile of the site to 1978 levels. The assessor tried to reflect where water sampling was done and the results of the tests, but in the end, a line was drawn which seemed reasonable. In 1981, assessed values were increased to what property values would have been in 1979 (still a one year lag).

The loss of property tax revenues to Springfield Township in the 1980 and 1981 assessment years was insignificant because assessed values in other areas of the Township increased.

Building permit check: On September 13, 1979 the building inspector was instructed not to issue building permits or occupancy permits along selected roads in the area. This request was not a building moratorium, but rather a requirement that wells be tested before building was initiated.

The efforts of Springfield Township to monitor activities and keep residents informed is viewed as a continuing activity.

Rose Township

Rose Township officials participated in the September 12, 1979 meeting of the Toxic Substance Control Commission, urging the declaration of the toxic substance emergency. It was the view of the Township that the DeMode Road toxic waste site was a problem beyond the control and capabilities of the Township to handle. The emergency declaration appeared to be the only way that funds for cleanup could be obtained.

Following the declaration of the emergency, the issue was discussed at every Township Board meeting. In addition to regular Board meetings Township officials planned three special meetings to review progress on the cleanup with interested residents. (April, May, and June, 1980).

Rose Township officials stayed in touch with state and county officials, as well as area residents. Supervisor Michael Izzo and Treasurer Joyce Slaughter continued to telephone the involved county and state agencies to check on progress and answer citizen questions.

Rose Township assisted state and county agencies in repairing and improving the access road to the DeMode Road site. Current plans to improve the access road are being coordinated by Supervisor Izzo. The Township (through a donation from a Township Board member) is providing the gravel, Oakland County will haul the gravel, and the state will bulldoze out the road at a low cost.

When the toxic waste site was found, the building inspector was instructed to monitor new construction within 1/2 mile of the site. In addition, Rose Township officials believe that it is essential that no development take place on the Dorsey property near DeMode Road (there are presently no homes on the site). Assistance from state agencies in condemning the property has been requested. Although no one is proposing development on the Dorsey property, property just to the east of the site has been sold and the owners wish to subdivide and develop. The Township has alerted the owners of the proximity to the toxic waste site, but does not intend to restrict the development on the basis of water concerns at this time.

The toxic waste situation in Rose Township was complicated in September, 1981 by the discovery of another toxic waste site at a cemetery on Milford Road, approximately 1-1/2 miles east of the DeMode Road site. The site is believed to contain 500 barrels, with some toxic chemicals. The nature of the dumping appears similar to the DeMode Road site, and there is speculation that it was used at times that the DeMode Road site was inaccessible. The Cemetery site has become another significant concern for Rose Township officials and residents.

One of the major actions taken by Rose Township has been to attempt to reduce property assessments of persons affected in the Township. Under contract with Rose Township, the Oakland County Equalization Department has, until recently, been responsible for assessing property. In accordance with Michigan law, the Rose Township Board of Review holds hearings to hear resident complaints about mistakes in the assessed values. Tax assessments can only be reduced if the person personally appears before the Board of Review.

In March, 1980 (the first tax review after the toxic waste emergency), the Oakland County Equalization Department said that it was impossible to determine the effect of the toxic waste sites on property values. Instead of completing its assessments, it left the decision to the Rose Township Board of Review. The decision of the Board was to reduce assessed values for property within one mile of the site by 20 percent, and to reduce assessed values of property in a broader radius by ten percent. These tax reductions were carried out in 1980.

In 1981, the County Equalization Department, acting as the Township's assessor, added the property tax reduction back into all property values and added an additional ten percent as well. A property assessed at $16,000 in 1979 was suddenly increased to $22,000 assessed value. In effect, the Equalization Department was saying to the Township that they had "overreacted" in granting the reduced assessed valuations.

The Rose Township Board of Review decided that factors affecting property values had not changed, and the toxic waste site and concerns about Marlowe Landfill were affecting Rose Township. Tax assessment appeals from residents were heard in March, 1981. A total of 296 persons appeared before the Board of review, representing 550 parcels of land. Nearly all persons mentioned the toxic waste dump site as a factor affecting their property. (As many as 90 percent of the residents appealing lived within two miles of one of the sites.) Two or three persons indicated that they had entered into sales agreement on land they owned, only to have them cancelled at the last minute because of fears of the toxic dump site or Marlowe Landfill. Real estate agents and brokers made statements, and with one exception, said that although real estate in general was slow in sales, Rose Township was experiencing a decline greater than most. Realtors noted that persons from outside Rose Township were aware of the toxic waste site.

Following the hearings, the Rose Township Board of Review determined that the DeMode Road toxic waste site and the Marlowe Landfill were creating adverse impacts on property values, and lowered assessed values by 25 percent for all persons who had come before the Board to appeal.

In August, 1981, the Oakland County Equalization Department, in accordance with orders from the State Tax Commission, reinstated the assessments which had been lowered. On September 10 and September 11, the State Tax Commission heard complaints from residents regarding the reinstated assessments. Prior to the hearing, the State Tax Commission had reviewed property sales data in accordance with state law. The reduction in property tax assessments for two parcels (directly adjacent to the Cemetery site), however, was upheld.

The reasons for the State Tax Commission decision was complicated, involving Michigan assessment rules and regulations. Without question, however, the efforts of Rose Township to lower assessments on homes throughout the Township which may have experienced adverse effects from the toxic waste sites have been extensive and are continuing.

CHAPTER III: SOCIAL AND ECONOMIC IMPACTS ON COMMUNITY RESIDENTS

CHAPTER III: SOCIAL AND ECONOMIC IMPACTS ON COMMUNITY RESIDENTS

APPROACH TO IMPACT ASSESSMENT

How have the Shindler Road and DeMode Road toxic waste sites affected families and individuals and the communities themselves in Springfield and Rose Townships? Is there any pattern to the social and economic effects? Will effects be long-lasting, or are the effects temporary? These central questions guided the interviews with community residents.

Types of socal and economic impacts experienced by the residents interviewed as well as perceptions of the community and government agencies are documented in this chapter of the report. Since persons to be interviewed were not determined through a process of random sampling, the findings from this chapter cannot be generalized to all persons within one mile of the sites, or all residents of the townships.

This chapter is written from the viewpoint of a resident living within one or two miles of a toxic waste site. The chapter summarizes the economic, health, and social impacts detailed by residents through interviews which typically lasted two hours.

The reaction of some persons reading this chapter will be to feel that the impacts or effects reported by residents are not true, are overstated, or caused by lack of information. The intent of this chapter is not to verify, clarify, or challenge views and statements made by residents; it is simply an effort to summarize the impacts reported. Of necessity, the chapter generalizes the specific experiences of persons contacted. Because of the wide range of experiences, impacts, and viewpoints, readers are encouraged to read the summaries of each interview, contained in Appendix B of this report.

INTERVIEW METHOD

To provide insights into social and economic impacts experienced by Rose and Springfield Township residents, a series

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of in-depth personal interviews with a limited number of residents was completed. Because of the complexity and range of potential social and economic effects, an extensive interview was considered necessary to fully understand a family's situation and the full range of impacts.

Residents were selected for interviews with two purposes in mind:

1) To obtain a cross-section of viewpoints and experiences related to the toxic waste sites; and

2) To document the most extensive impacts, real and perceived, including health, social, and economic impacts.

Suggestions for persons to be interviewed were solicited from Township officials. Contacts with residents, in turn, led to the identification of other persons to be interviewed. All but two of the citizen interviews were with persons living within a two-mile radius of either the DeMode Road or Shindler Road toxic waste site. Approximately two-thirds of the citizen interviews were conducted in Rose Township because of the complex community situation resulting from the presence of more than one toxic waste site in the Township.

Residents were contacted by telephone to explain the purpose of the project. Personal interviews lasting an average of two hours were then conducted, either at the resident's home, place of business, or coffee shop. Following the interviews, a written summary was prepared and returned to the interviewee for corrections. Interviewees were assured on the telephone and during the meetings that names would not be used in the report. Although friends and neighbors may be able to identify persons associated with individual interviews, the anonymity was viewed by many persons contacted as necessary for participation. For this reason, some details concerning family situations have been omitted from the interview summaries. Residents, in general, were interested in the community impacts project, especially if information about their experiences could help other communities. Many people, however, do not want publicity or new coverage.

Open-ended interviews were conducted in order to identify the impacts most significant to the individual. As reflected by the interview guide (Appendix A). the following set of questions was asked initially:

1. How did you learn that the waste site contained toxic waste?

2. Was your water well tested by the Oakland County Health Division? If so, what were the results? Are you drinking bottled water?

3. What changes have occurred in your family life (and in the community) as a result of the toxic waste site?

In cases where the interviewee was an active participant in community or agency meetings, the interviews traced the series of events and the responses, reactions, and impacts on the individual.

Following the general, open-ended questions, cards listing possible economic, health, and social effects were displayed to solicit further response. The following potential impacts were included on the cards:

Individual Expenses:

a. Loss of income

b. Costs of professional services:

   1. Legal advice

   2. Technical advice

   3. Medical expenses

   4. Laboratory testing

c. Lower property values
(or ability to sell property)

d. Relocation costs

e. Loss of business
(e.g., loss of crops, loss of livestock, alternative water supplies, etc.)

Health Effects:

a. Physical illness

b. Mental illness

c. Psychological effects

d. Concern about future health problems

Social Effects:

a. Cooperation and communication among neighbors

b. Feeling of fear or uncertainty

c. Community appearance (aesthetics)

d. Family relationships

e. Life style and activities

f. Personal plans or decisions

g. Community image

h. Trust in government

In most interviews, significant impacts seen by the individual were identified through general discussion -- the cards were not necessary to stimulate a dialogue or prompt a response. The cards did, however, insure that all residents considered a broad range of potential impacts during the interview.

It was initially hoped that the social and economic impacts could be documented with dollar figures to provide a total community cost associated with the toxic waste sites. In view of the small number of persons interviewed and the range of costs incurred, a tally of total community costs would be an estimate so general that it would be useless. In addition, dollar values cannot be ascribed to certain social costs. Cost incurred by residents are documented in the actual inteview summaries whenever possible (see Appendix B).

Each category of impacts, as reported by the households contacted, is highlighted below. Figure 4 summarizes major social and economic effects experienced by the 21 persons interviewed within two miles of the toxic waste site.

FIGURE 4

SUMMARY OF SOCIAL AND ECONOMIC IMPACTS CAUSED BY TOXIC WASTE SITES

Twenty-one of the interviews conducted to obtain insights into social and economic impacts were with persons living within two miles of either the DeMode Road or Shindler Road toxic waste site. The following table summarizes the major social and economic impacts identified through the interviews. Results of interviews with several realtors, officials and citizens living beyond a two-mile radius are not included.

	Rose Township		Springfield Township		
	Within 1 Mile	Within 2 Miles	Within 1 Mile	Within 2 Miles	Total
BACKGROUND					
Distance from Toxic Waste Site	8	5	7	1	21
Well Tested by Oakland County Health Division	8	1	7	0	16
Trace Levels of Contaminants Found	3	0	4	0	7
Drinking Bottled Water (either supplied by County or purchased)	2	4	5	0	11
ECONOMIC IMPACTS					
Believe Property Values Have Been Lowered	7	5	7	1	20
Purchased Bottled Water	1	4	2	0	7
Legal Fees	0	1	4	0	5
Medical Fees	0	0	1	0	1
Private Laboratory Tests for Water Well Supplies	0	2	2	1	5

continued

Figure 4 (continued)

	Rose Township		Springfield Township		
	Within 1 Mile	Within 2 Miles	Within 1 Mile	Within 2 Miles	Total
IMPACTS (continued)					
Increased Home Construction Costs	0	0	1	0	1
Business Liability Insurance	1	0	0	0	1
Telephone/Mileage Costs Over $100	1	1	2	0	4
SOCIAL AND HEALTH IMPACTS					
Psychological Stress	1	1	3	0	5
Concern About Future Health Problems	4	4	3	0	11
Feeling of Fear or Uncertainty About the Future	5	4	4	0	13
Use of Lake and Ponds for Recreation	3	1	2	1	7
Personal Plans or Decisions Altered	1	2	3	0	6
Lack of Trust in Government (caused or increased by toxic waste site)	3	5	4	0	12
Lack of Communication or Information Viewed as a Problem	6	3	5	0	14

RESIDENT PERCEPTIONS OF TOXIC WASTE HAZARDS AND WATER WELL TESTING

As documented in this chapter, social and economic impacts of the toxic waste sites upon individual families in Rose and Springfield Townships have been varied. Some families are extremely concerned and have incurred expenses for water well testing by private laboratories, medical tests, and bottled water. Other families are not concerned about the toxic waste sites since the Oakland County Health Division has said that it is safe for residents to drink their well water.

At first glance, the fact that different social and economic effects would occur appears predictable. People live different distances from the toxic waste site, have different results from water well testing, and are in different family situations. In some cases, however, different responses resulted from very similar geographic and water conditions. When trace levels of contaminants were found in drinking water supplies, the reactions of families varied.

The majority of persons interviewed who had trace levels of toxic chemicals in drinking water at least one time had a similar reaction: the chemicals should never have been present in the first place and although present in small amounts, are of concern. Several persons inteviewed, however, understand the information from the Oakland County Health Division that the levels of toxic chemicals are within "safe" levels and that no public health threat is present. It is not known if these persons would remain unconcerned if trace levels of chemicals (at "safe" levels) continued to persist in drinking water supplies.

The situation at the Oakland County sites was complicated by the pattern of testing and the results of the testing. Although the Oakland County Health Division provided more extensive toxic chemical testing of private water supplies than had ever been done in the County, there were families approximately one mile from the toxic waste sites which were not included in the testing. In some cases, families who wanted their water tested did not understand why this was not done when tests had been made on the water of a neighbor.

A second complicating factor was actual results of the laboratory tests. In three rounds of testing in the early Fall of 1979, low levels of toxic chemicals were found at least once in 29 wells. The round of testing following the October, 1979 round, however, did not confirm the low levels. The fact that toxic chemicals were found only once could not be satisfactorily explained and created confusion. At least to some residents, the change in results was evidence that governmental agencies were hiding information and really didn't want to "find any problem with the water."

A third complicating factor was the media coverage of the toxic waste sites, both preceding and following the declaration of the toxic substance emergency the State Toxic Substance Control Commission. "Groundwater contamination in Rose and Springfield Townships" was continually reported in newspapers, radio, and television. The fact that the levels of toxic chemicals found were, for the most part, well within safe health limits was not reported. Persons who might otherwise have been relieved that water supplies were safe (as reported in newsletters from the Oakland County Health Division) instead became concerned about the "groundwater contamination." Media coverage also heightened perceptions and knowledge of the toxic waste sites beyond Rose and Springfield Township and enlarged public recognition of the problem. It may also have affected the marketability of property in the immediate area, which is discussed in the following section of this report. Although a number of toxic waste sites have been found in Michigan, few have received the publicity and media coverage of the Rose and Springfield sites. An analysis of the impact of the media has not been included in this study, although it is an important subject for further inquiry.

For a variety of reasons, many residents viewed the reports of low levels of toxic chemcials as a serious concern. The perceptions of the seriousness of the potential contamination (existing contamination or potential future contamination) are directly related to social and economic impacts on the community.

ECONOMIC IMPACTS ON INDIVIDUALS

Lower property values (or marketability of property) is viewed by nearly all persons interviewed as being one of the most significant economic impacts of the toxic waste sites. In addition, some families have incurred costs for professional services, bottled water expenses, and some loss of income as a result of the need to attend meetings, and provide court depositions. Business losses and relocation costs have not been incurred, although such expenses could be anticipated in cases where severe threats to public health are present.

Lower Property Values

The effect of the toxic waste site on property values in Rose and Springfield Township cannot be demonstrated because few sales in the area have occurred. However, some homes have been on the real estate market for a year or longer and, especially in Rose Township, are linked in the minds of many to the toxic waste sites or the Marlowe Landfill.

Twenty of the 21 persons interviewed within two miles of the sites referenced lower property values and difficulty in selling homes as a major economic impact on their families and the community. Upon questioning, several people rhetorically asked, "would you like to live next to a toxic waste site?" Whether or not there is verifiable evidence of decreased property values, the impression of severe property value impacts is widespread. The concern was mentioned more frequently than any other social or economic impact.

Psychologically, the property value impact has manifested itself as a "feeling of being trapped." Several persons interviewed stated that they had put aside all thought of ever moving or leaving the area because sale of their homes would be impossible. Several others are trying to sell their homes but have had few inquiries. The view of lower property values probably extends beyond one mile of the toxic waste site in Rose Township because of the presence of the Cemetery toxic waste site and resident questions about the Marlowe Landfill.

The perception of lower property values as a result of the toxic waste site is widespread in Rose Township, as documented by testimony at the Rose Township Board of Review hearings in 1981 and 1982. At the 1981 hearings, eight real estate agents and four brokers made statements. With one exception, the realtors and brokers said that although real estate in general was slow, Rose Township sales were experiencing a decline greater than most townships. A total of 396 persons appeared before the Rose Township Board of Review in 1981 to protest property tax assessments. Nearly all persons mentioned the toxic waste site as a significant factor affecting their property. It is not known whether persons were looking for a reason to support their request for lower assessments or whether the view is deeply felt. The fact that at least some persons beyond a one mile distance of the DeMode Road site are extremely concerned about property values and the toxic waste sites, however, was supported in interviews.

In Springfield Township, many people living beyond one mile of the Shindler Road toxic waste site have also mentioned the toxic waste site when appealing property taxes. Because most Springfield Township interviews were conducted with persons living within one mile of the site, Township-wide property impacts could not be confirmed. Several persons interviewed, including one realtor, however, believe property value impacts are township-wide.

To obtain information about the actions and reactions of potential property buyers and sellers to the toxic waste sites, five real estate agents or brokers were contacted for interviews. Two of the realtors live within one mile of the Shindler Road toxic waste site. Realtors hold widely varying views about the effects of the toxic waste site on property values.

Two brokers interviewed in their Clarkston office (broker "A" and broker "B") stated that the two toxic waste sites will not decrease property values in the long run, even within one mile of the site. On a temporary basis, however, they believe that property within one mile of the sites will be more difficult to sell. Broker "C" from the same office, however, reported knowledge of one potential land contract purchase in Rose Township which was abandoned by the potential lender due to the toxic waste site.

One Davisburg realtor who handles property in both Rose and Springfield Townships and has lived in the area for many years stressed the difficulty of determining the precise effects of the toxic waste sites on real estate values. Overall sales in the area have been low for several reasons, so trends are difficult to see. Market value is determined by the price that a "willing buyer" pays a "willing seller". The question is really the effect of the toxic waste site psychologically on potential purchasers. Ecnomic, geographic, and environmental factors will influence different buyers in different ways.

A realtor who lives within one mile of the Shindler Road site (Mrs. "T") indicated that some people telephoning her office for information about property in the area are aware of the toxic waste sites and wish to avoid Rose and Springfield Township as a result. In her view, the Shindler Road toxic waste site has had a definite impact on the marketability of property throughout Springfield Township -- the impact is not limited to Shindler Road. She suspects that the impact on

Springfield Township may be even greater than in Rose Township since Springfield Township has been experiencing rapid growth.

Only a few sales within one-and-a-half miles of either toxic waste site have taken place since the Fall of 1979. It is not known if new property owners were informed about the location of the toxic waste sites prior to the sale (except in one notable case on DeMode Road). The sales were as follows:

Within one-and-a-half miles of Shindler Road toxic waste site:

- One-acre vacant parcels sold on Ormond Road in April and May, 1980. The asking price was $12,900/acre and each parcel sold for $11,500/acre. The property was listed for 385 days.
- An unfinished home on Eagle Road (west off Ormond Road within one-and-a-half miles of Shindler Road) sold in April, 1980 for $55,900. The property was listed for 22 days.
- Three bedroom house on Shindler Road (1300 square feet on a five-acre lot) sold in December, 1980 for $67,000. The home was on the market for 179 days.
- House on Ormond Road sold for $70,000 in the fall of 1979. The original asking price was $120,000. Due to loss of a job, the owner needed to sell quickly and drastically reduced the original asking price.

Within two-and-a-half miles of DeMode Road toxic waste site:

- Vacant five-acre parcel on Hickory Ridge Road within one-and-a-half miles of the site sold in September, 1980 for $14,000. The original listing price was $16,000, and the parcel was on the market for 190 days.
- House on DeMode Road, within one-fourth mile of the toxic waste site, sold in the Fall of 1980 for $40,000. In August, 1979, prior to the "re-discovery" of the toxic waste sites, a potential purchaser had agreed to purchase the home for $60,000. The new owner signed a statement that they were aware of the history of the toxic waste site within one-fourth mile of the home.

It is not known if other sales, perhaps private, land contract sales not included in the real estate multiple listings, have been transacted. Although these sales document that some transactions have occurred, there is no way to ascertain the actual effect of the toxic waste sites on value received.

Loss of Income

Few persons interviewed reported loss of income due to the toxic waste sites. In one case loss of income was related to time involved in court hearings and the loss of one day's pay. In another case, loss of income was associated with time away from the job to attend geovernmental agency meetings related to the cleanup activities. For the most part, residents who have spent many hours talking with agency representatives and researching potential toxic waste hazards have been homemakers without jobs outside the home.

Loss of Business

Although several businesses (related to farming and agricultural products) are within one mile of the DeMode Road or Shindler Road sites, adverse effects on the businesses have not been experienced. If toxic chemicals had been found, however, the agriculturally-based businesses would have been ruined.

No businesses dependent on tourism or outdoor recreation are located near the Rose and Springfield Township sites. Recreation-oriented businesses are among the types of businesses considered most likely to be adversely affected by proximity to toxic waste sites.

Costs of Professional Services

The following types of professional service costs have been incurred by the persons interviewed:

> Laboratory testing of water well supplies: In order to obtain information about water supply wells, some families engaged the services of private laboratories. Four persons interviewed had private laboratory tests completed, and several persons mentioned that they would have done so if the expense had been affordable.
>
> In several cases, residents had fairly extensive tests for toxic chemicals performed (costing $750 and more/test). In other cases, tests were made for only one or two specific chemicals (costing $100-$200/test).
>
> In Rose Township, a small group of residents concerned about both the Marlowe Landfill and the DeMode Road site joined

together for surface water testing, although the cost of the testing was paid by a single homeowner. Efforts to organize a special testing of water wells with a special group rate are now being made by one resident.

Medical expenses and tests: One family interviewed paid for special medical tests to determine the presence of lead. Blood tests and other basic tests were completed at a total cost of approximately $200.

Legal advise and fees: Especially in Springfield Township, residents are incurring costs related to legal advice. At least two groups of residents have organized and have filed lawsuits related to the toxic waste sites. To date, most legal fees have been minor start-up costs ($100-$200/family), and most residents involved indicated that total costs are not known at this time.

One family incurred a $200 cost related to legal advice on suing the real estate company that had sold them property near the toxic waste site.

Technical or scientific advice: For the most part, residents have not obtained and paid for scientific advice concerning the effects of toxic chemicals on groundwater or public health. In one of the citizen lawsuits, however, the attorneys have employed a scientist to provide advice on water supply testing methods. Specific costs associated with this technical advice are not known.

Relocation Costs

The public health threats related to toxic wastes in Rose and Springfield Township have not warranted efforts to move and relocate families and businesses. Several persons interviewed indicated that they had heard about or knew families who had left the area because of the toxic waste site. Relocation costs associated with such deliberate moves are not known, since the individuals are no longer in Rose and Springfield Townships.

Purchase of Bottled Water

Bottled water purchased in the grocery store (either spring water or distilled water) costs approximately $.60/gallon. Several families interviewed indicated that two gallons of water/person/week might be expected. Water use is highly variable; however, several persons interviewed purchased bottled water for one year or more after the discovery of the toxic waste site. In several cases, families began purchasing bottled water after deliveries by the Oakland County Health Division were discontinued. Several families indicated that they discontinued purchase of bottled water when the husband lost his job and family finances were limited.

Eleven persons interviewed indicated that they regularly drank bottled water for some period of time after the Fall of 1979. Many families had bottled water delivered by Oakland County (through the office of the Oakland County Executive). Others obtained water from relatives, friends, or places of employment outside Rose and Springfield Townships. Some people who originally received water from Oakland County continue to drink bottled water on a regular basis, even though the Oakland County Health Division says that it is not necssary to do so.

Other Costs of Residents

Several residents interviewed have incurred other types of economic costs directly related to the Rose and Springfield Township toxic waste sites. These additional types of costs include:

Telephone and mileage costs: Four of the residents interviewed have had significant costs for long distance telephone and/or automobile mileage. The costs were primarily incurred in the first six months of the project when numerous meetings were held and when the water well testing was being conducted by the Oakland County Health Division. Citizens with long-distance telephone costs ($100/month in some cases) were trying to obtain information about the status of the cleanup, health effects of toxic chemicals, and other technical questions. State agencies, the U.S. Environmental Protection Agency, and private laboratories were contacted. Several citizens have attended meetings of the Toxic Substance Control Commission in Lansing on a regular basis. One resident interviewed experienced a substantial mileage cost while interviewing various legal firms.

Business liability insurance: One businessman involved with agricultural products purchased additional business liability insurance following the discovery of the toxic wastes. Although his water did not have toxic chemicals, he realized from the incidents that groundwater contamination could occur and destroy his business. His insurance costs increased three-fold.

Home construction interest rates: One of the greatest single economic costs to a family related to the toxic waste sites was incurred by a family in the process of building a new home in the Shindler Road area at the time of discovery. The family had plans to pour the basement of their new home at the time the toxic wastes were announced in the newspapers. When they heard the news, they delayed building until February, 1982. The delay in building meant a 13% mortgage (rather than a nine-and-a-half percent morgage) on their new home, a $500 cost for new blueprints, and home rental costs for an additional six months beyond their planned rental period, while the new home was being built.

Instead of continuing with their plans to build their new home, the family bought a second home (having already sold their first home) in the Berkley area while they awaited events. Fortunately, the purchase and subsequent sale of the second home was not a net cost to them.

HEALTH EFFECTS

Potentially, health effects are the most serious effects of a toxic waste site on a community. If groundwater is contaminated to the point where residents become physically ill, a major community disaster has occurred. Fortunately, severe health effects have not been reported by Rose and Springfield Township residents. The level of toxic chemicals found in nearly all wells at any time has been below standards or guidelines of the U.S. Environmental Protection Agency. Comments made by residents concerning physical illness, psychological effects, and concern about future health are summarized below.

Physical and Mental Illness

None of the residents interviewed reported physical illness that they know or believe is related to the toxic waste sites. However, several persons reported family health problems which they at one time suspected may have been related to their water supply. Since the toxic wastes were dumped in the late 1960's, residents do not know what chemicals they may have been consuming in past years.

In several instances in the past two years, residents have reported health problems to local officials or the Oakland County Health Division which they believe may be related to the toxic waste sites. Reported problems have led to specific water well testing by the Oakland County Health Division in a number of cases, but a link between the water and the health problem has not been made by health officials.

Psychological Effects

Many persons interviewed who have found traces of toxic chemicals in their water at any time reported high levels of stress and anxiety. The cause and reasons for the stress becomes clear when the position of the residents is understood.

Families learned that trace levels of toxic chemicals were in their water and that bottled water was available. Toxic chemicals are associated with cancer and other serious health problems in many people's minds. Reflecting current research, officials and agency staff were unable to definitively state the health effects of water contaminated at various levels. Families worried about their health and their children's health, and in some cases did not know where to turn for information or support.

The uncertainty of the site cleanup schedule and the lack of information about the level of contamination in individual water wells added to the stress. A number of homes, especially in the Shindler Road area, have been built within the last ten years. Families have moved to Rose and Springfield Townships with the expectation of moving some time in the future. With the discovery of the toxic waste sites, some families feel trapped. They feel that their option of moving in the future has been cut off. In cases where a future move has been planned (or was in progress) the level of stress, concern, and worry about the family's future was extremely high.

On the basis of the interviews conducted for this project, it cannot be determined whether the psychological impact and effects of stress and worry on families will be long-lasting. The interviewer was not a trained psychologist, and an attempt to precisely measure the level of stress was not made. It is the view of the interviewer, though, that several families have been deeply affected by the toxic waste sites and the events following their announcement. The most long-lasting psychological effects may be upon children who drink bottled water and believe that water that comes from the tap is "poison".

Concern About Future Health Problems

Eleven of the 21 families interviewed within two miles of the sites have serious concerns about the future health of their families. The concern is felt by persons who have had trace levels of contaminants in their water, as well as by persons who believe that they may experience contamination in the future. The question sometimes stated by residents interviewed was, "what will be the effect on my children in 20 years?"

Many of the residents interviewed referenced the Love Canal disaster, and the fact that the impacts of toxic chemicals upon health may be not evidence themselves immediately.

The response to the concern about future health, in a number of cases, has been to drink bottled water. Some residents want a safety measure, feeling that the quality of groundwater is unknown. Several stated during interviews that even if water well tests continue to be made and come out clean, they would continue to drink bottled water. The toxic site is nearby, and residents feel a potential threat as long as toxic chemicals are in the ground.

SOCIAL EFFECTS

Social effects include all aspects of individual, family, and community change which extend beyond economic costs and direct health effects. The questions related to social effects elicited information on attitudes and viewpoints concerning the cleanup activities of governmental agencies, as well as descriptions of social effects on individuals and the community.

Initial questions during the interview process were open-ended, allowing the person to target the types of impacts and community effects of most conern to that individual. Concerns about communication (agencies to residents) and views of government frequently were raised. In part, these concerns were raised by citizens who have been actively involved and have closely followed the cleanup effort. These persons are known by local officials and were suggested as contacts for the interviews. In addition, however, persons who have not attended meetings raised questions about government. Potential roles of Township government in addressing the communication question are described in Chapter III of this report. Individual categories of social effects are described below.

Cooperation and Communication Among Neighbors

The discovery of the toxic waste sites has led citizens to work together to find appropriate responses. In both Rose and Springfield Townships, small groups of residents met together after the toxic wastes were announced to determine appropriate action. In some cases, neighbors with particular expertise (such as chemistry or law) assisted in a professional capacity. Even today, there is a network of residents which maintain communication concerning the toxic waste sites and the cleanup activities. When people attend meetings or hear certain new findings, they share information with others through the network of contacts. The fact that Shindler Road residents and DeMode Road residents are in the same school district has facilitated the communication on the two-site cleanup effort.

In Springfield Township, at least two groups of residents have organized for the purpose of legal action. A different group of residents (on Shaffer Road) organized for the purpose of testing surface water quality in a pond used for swimming and boating. In Rose Township, a group of residents concerned about both the Marlowe Landfill and the DeMode Road toxic waste site organized to pressure officials to take action and bring attention to the problem. The primary purpose of the communication among residents, however, has been to share information about events, and options for action.

Although residents in both Rose and Springfield Township did communicate with neighbors to determine possible action and responses, there is one dominant difference in the communication pattern in the two Townships. In Springfield Township, the residents living on Shindler Road closest to the toxic waste site were the most active and joined in the lawsuit. In Rose Township, a different pattern emerged. Residents in close proximity to the toxic waste site did not actively and openly work together. Several persons living within one-and-a-half miles repeatedly tried to involve citizens, but failed. The lack of involvement and concern of some persons living within one mile of the DeMode Road site was ascribed by some to a lack of knowledge. Some Rose Township residents interviewed pointed out that the strong response to the DeMode Road toxic waste site (and the Marlowe Landfill concerns) arose from younger, relatively new residents. As one long-time resident of Rose Township expressed it, long-time, older residents know how to handle problems without the publicity. To this resident, the crisis seems to be associated with the younger families which expressed high levels of concern.

A second "attitude" concerning neighbors was strongly expressed by two Rose Township residents interviewed. They noted that persons receiving bottled water were "labeled," and that community tension was high while water well testing was continuing. People whispered about bottled water and who's well was contaminated.

The outcome of resident communication over the past two years appears to be a loose network of concerned citizens in both Rose and Springfield Townships who know each other and want to stay informed. Coordination of efforts is continuing. One resident is organizing an effort for water well testing by a private laboratory with a group rate for participants. For these active and concerned residents, the toxic waste issue is far from over. Persons interviewed who remain in touch with other citizens are often convinced that it is only through citizen action and pressure that an appropriate and adequate governmental response will take place.

Feeling of Fear or Uncertainty

In a few cases, as described in the section on "psychological effects", the toxic waste site discovery led to high levels of stress and concern about the future. A great deal of the stress was due to the feeling of fear and uncertainty about the future. Thirteen of the 21 residents interviewed within two miles of the site do feel very uncertain about the future.

One resident in Springfield Township shared her feelings about drinking water. The family drank bottled water when it was supplied by the Oakland County Health Division, but now drinks the water from their well. Some days, she forgets about the water...but on others, she is troubled by the problem. What could be in the water tomorrow that wasn't there today? What extent of groundwater contamination will be found on the site? What direction are contaminants moving from the site? Will they be able to sell their home if they need to do so? What will the future bring? Thoughts like these related to the uncertain future, are on the minds of many residents.

Community Appearance (Aesthetics)

Community appearance is not a concern of residents interviewed. The threat of the toxic wastes is to health and the future of the community -- not the surficial "attractiveness" of the area. In fact, the toxic waste sites are not visible from the roads. One resident in Rose Township mentioned odors from the toxic waste site, but odors are not apparent by persons living closest to either of the two sites.

Family Relationships

In a few cases, persons interviewed mentioned that the stress and strain of the toxic waste sites, and the uncertainty about the future has put added pressure on family relationships. One housewife living on Shindler Road mentioned that her son had left home to join the Army, in part, to escape the toxic chemicals. In most cases, however, the effect of the toxic waste site on family relationships has not been great. Husbands and wives have worked together to determine implications for their families.

Life Style and Activities

Two types of changes in life style have been caused by the toxic waste sites: (1) changes related to the use of bottled water; and (2) changes in the use of lakes and ponds for recreation.

A total of eleven of the families interviewed have used bottled water at some time since the toxic waste sites were found. Although use of bottled water does not destroy life at home, it is an inconvenience for drinking and cooking. In addition, bottled water is a continual reminder that the toxic waste sites exist and that groundwater may be contaminated in the future. Since the Oakland County Health Division has discontinued deliveries, bottled water is obtained from stores or homes of relatives and friends, typically on a weekly basis.

A second type of life style impact relates to the use of lakes and ponds for recreation. One resident living near Buckhorn Lake in Rose Township (approximately one mile from the DeMode Road site) observed that ice fishing on the Lake was notably absent in the winter of 1981-1982. In past years, as many as 12 ice houses would be present; this year there were none. This particular family has enjoyed fish fries in past years. Now the father takes his sons fishing, but they throw the fish back. Another Rose Township resident explained that he knows a good deal about fish, and will continue to fish. He will carefully inspect fish for abnormalities before eating them.

In Springfield Township, some effects on the recreational use of Big Lake, which at one point is approximately one mile from the Shindler Road site, is being experienced. According to one resident of Big Lake, some persons are afraid to swim or fish in the Lake for fear of toxic chemicals.

Personal Plans or Decisions

The toxic waste sites have affected several families directly by necessitating changes in personal plans. For example, one family in Springfield Township had already purchased a new homesite with the intention of building at the time the toxic wastes were found. The family's home was for sale at the time. Although the family would like to move, they feel that it is likely to be a long time before they can sell their present home. The husband has interest in a career in building -- the delayed move directly affects his hopes and ambitions for the future.

One elderly man in a short discussion at Rose Township Hall noted that he was postponing a decision to sell his home (two miles from the DeMode Road site) and move south. In his view, the toxic waste site has affected his home and many others in Rose Township, and his personsal plans will need to be changed. Additional specific examples are reported in the interviews with residents.

Community Image

Residents are not in complete agreement about effect of the toxic waste site on community image. In both Rose and Springfield Townships, however, residents interviewed noted that people from outside Oakland County and even the State of Michigan have heard about the toxic waste sites. The negative image associated with the Townships, in the view of some residents, has a direct effect on property values. Some Rose Township residents believe that the effects in Rose Township have been more severe than in Springfield because several toxic waste sites have been found.

Trust in Government

Twelve of the 21 persons interviewed within two miles of the sites referenced distrust, or cynicism, or lack of credibility about government and the governmental response to the toxic waste cleanup. Of all of the social impacts and issues mentioned by persons interviewed, the lack of trust in government was most prominent.

In some cases, governmental agencies outside township government are viewed as a single entity. The differences between state agencies (in Lansing) and the Oakland County Health Division (in Pontiac) are not commonly recognized.

Some residents explained that they had believed government "would take care of them" if a major disaster such as the discovery of the toxic waste sites were found. Other residents explained that they have never had a trust in government, and that the response of the cleanup of the two sites has reinforced that view.

Reasons for the extensive distrust in government related specifically to the DeMode and Shindler Road toxic waste sites include the following:

- The sites were known by government agencies in the later 1960's but were not cleaned up; residents wonder why, and believe that it is an example of government inaction.

- Several persons interviewed mentioned that publicity was necessary to stimulate agency actions. They noted that water well sampling was not initiated until extensive adverse publicity in the newspaper (August 13, 1979) occurred. In their minds, this cause and effect relationship leads to a sense of distrust.

- Several residents mentioned the variability in water well test results. During early rounds, trace levels of chemicals were found which later were not found. To some, the change in results seems like part of a "coverup" effort. "They never wanted to find anything in the first place; they don't want to really find our problems and help us" was stated on several occasions.

- The cleanup on the sites appears to many to be extremely slow. Some residents wonder why it took so many months to remove the barrels and why the direction of groundwater flow is still not known.

- At public meetings, and in response to personal inquiries, some officials were unable to directly answer questions posed or seemed to be trying to placate the residents.

- The reasons for discontinuing water well sampling are not clear to some, and seems to them to be an example of agencies not caring about the health of residents.
- In some cases, residents feel that they had to pressure agencies before their water would be tested or bottled water delivered. To some, this seems to be an additional example of agencies "lack of concern."

As referenced by these comments, some residents have a sense of being alone with the problem of the toxic waste sites and do not believe that government agencies are attempting to find a solution.

The response of the Toxic Substance Control Commission (TSCC) was specifically referenced by several persons. These persons believe that the TSCC has truly listened to citizen complaints and questions and assisted in the cleanup effort.

When residents personally know Township officials (as was the case for a number of the interviews completed), the feeling about distrust in government usually does not apply to local officials. However, when residents have not had personal contact with local government officials, they distrust the Townships as well. In several cases, residents stated that they were distrustful of all government officials, regardless of the agency or level of government.

Frustration Due to Lack of Communication or Information

Although not included as a potential type of impact on the interview guide, approximately 10 persons interviewed (almost 50 percent) mentioned communication concerns included the following:

- Lack of information from government agencies about plans for water well testing and site cleanup
- Feeling that information was not being completely passed on to residents (i.e., feeling of a "coverup")
- Attitude of government agencies that the situation is not a concern and that citizens are "emotional".

Knowledge about communication patterns and the flow of information might be expected to be highlighted in the interviews, since several citizen leaders known to Township officials were included. In addition, families with the potentially greatest impacts were contacted; these are also families who would typically search for information from government agencies as background for their own decisions. The relatively high level of concern and feeling that there has been a communication gap, however, was not expected. Possible local government roles in response to the communication gap are outlined in Chapter IV of this report.

Public Policy Implications

The major findings concerning social and economic impacts caused by the Rose and Springfield Township toxic waste sites include the following:

1. Although impacts created by the toxic waste sites on families are highly varied, the costs and stress reported in some cases have been great. Costs have included private water supply tests, losses in property values and marketability, purchase of bottled water, business liability insurance, higher mortgage interest rates due to delayed home construction, and others.

2. Many social and economic effects are directly related to perceptions of groundwater threats. Even if a water well test by a public agency indicates safe water, severe impacts may result. Impacts linger as long as fear about future contamination exists. Site cleanup and removal of potential contaminants is needed to assure citizens of safe water.

3. Persons react to the same situation or set of facts in very different ways. As demonstrated in the cases of Rose and Springfield Township, neighbors living next door to each other can experience widely differing impacts and reactions. The majority of persons contacted who have experienced high social and economic impacts are newer community residents with some view of moving in the future.

The case history and community reaction to the Rose and Springfield Township toxic waste sites demonstrates the serious nature of potential effects on a community. Even when groundwater is not contaminated on a permanent basis, a toxic waste site can cause families to believe that they will never be able to move from the area. Decisions related to home purchases, recreational activities, and purchase of agricultural products (among others) are directly related to feelings and emotions, and are affected by the threat of groundwater contamination as well as the reality. Publicity alone can create serious adverse impacts.

The implications for public policy related to groundwater protection and toxic waste site cleanup are clear. First, it is imperative that toxic waste site cleanup proceed in as rapid a fashion as possible. If sites can be cleaned up in a deliberate process, without extreme publicity or groundwater contamination, significant community costs can be avoided.

From the perspective of citizens and elected officials, if a toxic waste emergency has been declared and publicity about a site has been widespread (as with the Rose and Springfield Township toxic waste sites), there is a need to rapidly pursue cleanup activities. Partial cleanup is considered unfair by communities and residents after widespread publicity has taken place. The focus of government agencies' attention that results from declaration of a toxic emergency raises expectation for cleanup and the publicity increases problems with home sales and business. From a local perspective, completion of cleanup once it has started should be a State of Michigan priority.

Finally, there is a critical need to protect groundwater and avoid toxic waste sites in the first place. Many of the impacts at the Rose and Springfield Township sites are due to the presence of the toxic chemicals in the ground -- not actual water supply contamination in homes or businesses. Such community emergencies must be avoided in the future. Unfortunately, serious impacts can come from a wide range of activities -- industrial activities, careless use of toxic materials in the home, and improper waste disposal. Toxic waste sites are but one facet of the larger problem of groundwater protection.

CHAPTER IV: LOCAL GOVERNMENT ROLES IN TOXIC WASTE SITE EMERGENCIES

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CHAPTER IV: LOCAL GOVERNMENT ROLES IN TOXIC WASTE SITE EMERGENCIES

INTRODUCTION

When toxic waste sites are found and governmental responses and actions are organized, does a township, village, or city have a role to play? If so, what types of activities are appropriate? How does a local government response relate to county and state agency efforts?

The case history and resident views of the ongoing Rose and Springfield Township clean up effort provide useful background information for assessing potential roles and activities for local governments. Without a doubt, local governments potentially have a very important role to play as part of a governmental effort to respond to toxic waste emergencies. Rose and Springfield Townships demonstrated the importance of local government assistance, both on specific cleanup tasks and with resident communication.

This chapter describes a range of activities which local governments may undertake to assist residents and the cleanup effort. The appropriateness of any particular activity will vary according to available time and resources as well as the nature of the emergency and community concerns. Recommendations focus on the strong potential for local government assistance with resident communications.

The case histories of the Springfield and Rose Township toxic waste sites reviewed here focus on rural townships located on the edge of metropolitan Detroit. The organization of Township government, however, is different in the two townships. Springfield Township has a full-time Supervisor who is at the Township Hall during business hours and available at other times as well. In Rose Township, all elected officials serve on a part-time basis and Township Hall is open 1/2 day per week. Nevertheless, the Rose Township Clerk and Treasurer maintain full-time office hours in their homes and all officials are available on evenings and weekends. Both Townships were able to respond and assist, even though the governmental organization is very different in the two communities. It is believed that the activities for local governments described here are equally applicable to townships, villages, and cities. Regardless of the size of the local unit of government, its type of organization, or way of conducting business, there will almost always be a group of residents who, if directly affected by a toxic waste site, will need information and communication.

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LEGAL AUTHORITY FOR TOXIC WASTE MANAGEMENT AND CLEANUP

State, county and local governments in Michigan have legal authority to engage in certain types of activities to protect public health and safety. State agencies have specific mandates for toxic and hazardous waste management. Local government legal authority is broad, allowing for groundwater protection activities and participation in toxic waste site cleanup.

Important legal responsibilities and mandates for water quality and public health protection, as well as hazardous waste management, rest with state and county agencies. The Michigan Department of Natural Resources, through the Water Resources Commission, issues permits for groundwater discharges. The broad purpose of the Water Resources Commission is to protect and conserve water resources and to control pollution. The Department also regulates the transport and disposal of hazardous wastes (including the types of toxic chemicals found in Rose and Springfield Townships). Through these broad powers, the Michigan Department of Natural Resources investigates groundwater contamination threats such as orphaned toxic waste sites and develops cleanup programs in response to particular needs.

The Michigan Department of Public Health, working in cooperation with county health agencies, is charged by the Public Health Code with the broad mandate of public health protection. In April, 1982, the organization of a Center for Environmental Health Sciences in the Michigan Department of Public Health was announced, specifically in response to the need for an office to work closely with industry and government at all levels to prevent physical, chemical and biological hazards.

The Toxic Substance Control Commission, an independent State commission, was formed for the purpose of alerting officials to potential toxic substance problems and/or providing a coordinated governmental response when toxic waste emergencies are declared.

State law does not assign toxic waste site cleanup authority to a single agency. Instead, several state agencies, including the Michigan Department of Natural Resources, The Michigan Department of Public Health, and the Toxic Substance Control Commission have legal authority to develop and carry out cleanup programs for priority toxic waste sites.

As a complement to state and county agency legal authority and programs for groundwater protection, cleanup, and hazardous waste management, local governments can undertake a wide range of activities including planning and ordinances for groundwater protection. In most cases, such activities will fill gaps in existing county and state agency programs. It is legally possible, however, for a local government to undertake its own cleanup or enforcement program in response to a toxic waste site or to assist state and county agencies in cleanup efforts.

The Michigan Environmental Protection Act (Act 127, P.A. of 1970) allows any person or organization (including local governments) to sue any other party to protect natural resources from pollution, impairment or destruction. After it has been established that pollution is likely to occur from a particular activity, the party wishing to undertake the harmful action must prove that there is no feasible and prudent alternative and that the conduct is consistent with the promotion of the public health, safety and welfare in light of the State's paramount concern for the protection of natural resources. Local governments may use the authority provided by the Michigan Environmental Protection Act to take legal action against parties responsible for toxic waste sites or cleanup programs.

In some cases, local government officials may be reluctant to "get involved" in toxic waste cleanup and in communication with residents because of fears of liability. If a local government assists in communicating information about toxic chemicals, health effects, and the results of water supply testing to residents, will local officials inadvertantly assume responsibility for the adequacy or accuracy of such tests? The answer will of course vary with the facts of a situation. It is believed, however, that local government officials can use a common sense approach to communication and cleanup assistance which avoids legal liability concerns. Because of the serious nature of toxic waste sites and potential health threats, local officials can be faulted for leaving cleanup activities solely to county and state agencies. A cooperative, inter-agency effort is often needed to get the job done.

CLEANUP ASSISTANCE ROLES AND ACTIVITIES

Depending on the particular situation, local governments can undertake a variety of activities to assist state and county agencies with toxic waste site cleanup. Prior to the discovery of sites, of course, local officials can be of assistance by reporting suspected problem sites. The Michigan Department of Natural Resources maintains an emergency telephone number (Pollution Emergency Alert System toll-free number 1-800-292-4706). Barrels should be reported, whether or not the contents are known, for investigation by state agency staff. In addition, local governments can support efforts of state officials and agencies to identify problem sites and fund cleanup programs.

After the discovery of a site in a particular community, funding of cleanup programs and providing support services may be useful. Each type of activity is briefly described below.

Local Funds for Cleanup

After state and county agencies learned through laboratory tests that the chemicals in the Springfield and Rose Township sites were highly toxic, plans were made for removing the barrels and testing residential water wells. Special funding was believed to be available through the Toxic Substance Control Commission so local efforts to raise funds were not initiated. (It was later learned that special legislative appropriations were needed.)

In Rose and Springfield Township, the total cleanup cost has been high with nearly $1.2 million having been spent already to cleanup the sites. The level of funding reflects the technical difficulties in cleanup and disposal of toxic wastes. Complete funding by local governments for major site cleanup will rarely be feasible or possible. Initial "start-up" funds to remove leaking barrels or sample selected water wells, however, might be raised by local governments or local civic organizations.

Financing the complete cleanup of toxic waste sites, of course, remains a state-wide concern and challenge. With limited state funds, it may not be possible to clean up even the worst sites, State-wide. To spread limited state funds, it is possible that a state matching-grant program might be established. To stimulate and facilitate local fund collection an organized approach to establishing cleanup priorities is needed.

Support Services for Cleanup and Water Supply Testing

While state agencies are carrying out technical studies and cleanup activities at the site, and while county health agencies carry out water sampling programs, local governments can offer a range of support services.

For example, Springfield Township offered the use of Township Hall as local headquarters for the cleanup operation, althouth the offer was not taken. The use of Township Hall could serve the useful purpose of keeping local officials informed and involved. In addition, the use of Township Hall would indicate more clearly to residents that government agencies are responding to the problem -- a psychological benefit to all involved agencies.

Specific assistance which was provided by Rose and Springfield Township officials included the following:

- Assistance in obtaining property owner names near the toxic waste sites (water well samples were then taken);
- Assistance in providing bottled water (initially, arrangements were made to have bottled water available at Springfield Township Hall. Delivery to Rose and Springfield Township residents by the Oakland County Health Division then followed).
- Assistance in obtaining access to sites or background information useful in enforcement actions;
- Assistance in constructing access roads (Rose Township assisted with the construction of a new access road which was needed for the cleanup activities.

To undertake specific support services, local governments must be aware of cleanup activities and needs. Local government officials are typically able to respond rapidly to reasonable requests, on a wide range of activities.

MONITORING COUNTY AND STATE AGENCY ACTIVITIES

Both Rose and Springfield Township officials monitored state and county agency activities in order to keep residents informed of progress made toward site cleanup. As confirmed in interviews with Township officials, such monitoring can be very time consuming but can also provide an important link between agency actions and the community. Contacts with county and state agencies were maintained primarily through telephone calls.

In order to effectively monitor county and state agency activities, local government officials must know appropriate persons in key agencies and make a point of telephoning or meeting with staff on a regular basis. An effective monitoring effort, in turn, allows local officials to spot potential problems or opportunities for the local government to directly assist. If governmental action seems ineffective, legal action or mediation are options which can be pursued. Because there are typically three or four state and county agencies involved in toxic waste cleanup, monitoring at the local level is important. Local governments can also assist the Toxic Substance Control Commission with the TSCC's charge of monitoring activities when toxic substance emergencies are declared.

COMMUNICATION ROLES AND ACTIVITIES

In comparison with the need to test water supply wells, to identify the extent of groundwater contamination, and to cleanup toxic waste sites, communication with residents may appear unimportant. However, to the mother or father who has suddenly discovered that their children may be drinking toxic chemicals, the need for communication with agencies involved in cleanup efforts is essential. Families want and need to have information in order to make their own decisions.

The need for communication with residents becomes immediately apparent from a review of the interviews with Rose and Springfield Township residents summarized in Appendix B. Distrust of government and views that the state and county responses to the site cleanup have been slow or ineffective are widespread. In some cases, communication with local, county, or state officials would not change the situation and might, in fact, increase resident distrust. At least some of the distrust, however, appears to be the direct result of lack of information and the feeling of helplessness in the face of perceived agency inaction. In fact, state and county agencies have devoted financial and staff resources to the Oakland County cleanup which are not often available for toxic waste sites. The actions taken by agencies and the reasons for them are of vital interest to citizens. Communication is especially needed to reduce worry and negative feelings during a crisis situation.

Communication can and should take place between citizens directly affected by toxic waste sites and county and state agencies undertaking cleanup and health protection activities. Local governments can facilitate the communication through coordinated public meetings. As demonstrated by the experience in Rose and Springfield Township, such meetings offer essential opportunities for citizens to express their concerns and ask questions, even though they are frequently emotional sessions.

Beyond the role of facilitating communication between citizens and other agencies, local governments can directly assist in the communication process. Both technical and non-technical information of value to residents can be provided through local government officials. Technical information which may be provided by local governments includes the following:

- Information about groundwater vulnerability
- Information about toxic chemicals and health effects; and
- Information about site cleanup and water well testing methods.

Local governments may wish to use outside experts or obtain the necessary information from local and county agencies.

From a technical standpoint, information about toxic chemicals is often difficult to accurately communicate. Five different experts may have five different views on the scope of a contamination problem or potential health dangers. It is also difficult to translate technical information on subjects such as health risks into laymen's language. Despite the difficulties communication of the technical information is important and should be attempted.

Non-technical information is equally essential for communication purposes. Subjects and topics include:

- Procedures being used by public agencies for water well testing;
- Costs for private water well testing;
- Agency plans and the cleanup schedule;
- Temporary water supply options; and
- Referrals to appropriate agencies and staff when citizens have questions which can't be answered directly.

Perhaps most importantly, local governments offer citizens a place to air their concerns and questions. Insights into citizen concerns, in turn, allows local officials a chance to obtain the answers or facilitate the communication with others.

Specific organizational approaches or techniques for communication include the following:

- Newsletters: As demonstrated by the newsletter of the Oakland County Health Division, written information sent to area residents can be a useful communication tool. Newsletters should be supplemented, however, with personal contacts and communication for maximum effectiveness.

  The cost of preparing a technically accurate newsletter which is also understandable may be prohibitive for a local government. An alternative might be the preparation of short one-page bulletins or announcements. For example, prior to water well sampling by a health agency, a local government might distribute information about the purpose of the testing, dates when sampling is planned, and related information. Local governments can also help by reviewing technical materials written by county and identifying potentially confusing points.

- Ombudsman: An ombudsman is a person, (staff, an appointed official, or an elected official.) who conducts an outreach program to provide information to citizens. An ombudsman would meet with citizens, listen to concerns, obtain information, and articulate resident concerns to the responsible agency. The ombudsman would be the focal point for communication flows, would keep all local government officials informed of resident concerns, and would serve citizens as a clearinghouse for information provided by government agencies.

- Citizen information committee: A local government could appoint a special committee comprised of citizens and officials for the purpose of obtaining and reviewing information about the toxic waste cleanup and health protection effort. To be successful, committee members would need to be willing to listen and talk with agency representatives in a positive manner -- in some cases situations are too polarized or emotional for a committee process to be effective. In other cases, however, a regular forum for citizen representatives to meet together on a regular basis could be a useful aid.

  To organize a citizen information committee, residents in individual neighborhoods might select a representative. The local government could provide staff support and/or organizational assistance. The committee could be a working group to identify and voice problems related to cleanup efforts on a toxic waste site. One of the most valuable spinoffs could be citizens talking with each other and sharing views and experiences.

- Technical review group: When credibility of state and county agencies is an issue, local governments can organize their own technical review team to assist residents and answer questions. It may be helpful to have meetings to discuss findings, possible health effects, technical data, and other questions. Local experts (physicians, chemists, environmental health experts, etc.) might participate on a panel. Alternatively, experts might be hired by a local government to research questions and assist with technical interpretation.

- Public meetings: Regular meetings of the local government board (or meetings called for a special purpose) can also be a tool for communication. Residents could be notified of meetings and invited to voice their concerns and questions. Public meetings were one of the chief communication tools used in Rose and Springfield Townships. Meetings are particularly useful when rumors and fears are widespread and there is a need to reach many people quickly. Although meetings on the toxic waste site are often emotional, they do allow for the presentation of basic information and the voicing of resident concerns.

All of these approaches, of course, would supplement informal communication links between individual residents and individual local government officials and staff. The approaches and methods offer options for the development of a communication program which extends beyond the efforts of individual officials.

ENVIRONMENTAL MEDIATION AS A TOOL FOR RESOLVING TOXIC WASTE DISPUTES

When difficult conflicts between residents and government agencies arise as a result of toxic waste sites and cleanup activities, traditional communication approaches sometimes fail. Often the response when conflicts occur is legal action. In Springfield Township, for example, citizens have initiated legal action against governmental agencies and industries believed to be responsible for the toxic waste dumping. Environmental mediation is a communication tool which offers an alternative to legal action, and which can save all parties time, money, and stress.

The Institute for Environmental Mediation is the a pioneering organization in Seattle, Washington which has effectively used mediation as a process for resolving disputes, including disputes on environmental matters. As defined by the Institute, mediation is:

> "a voluntary process in which those involved in a dispute jointly explore and reconcile their differences. The mediator has no authority to impose a settlement. His or her strength lies in the ability to assist the parties in resolving their own differences. The mediated dispute is settled when the parties themselves reach what they consider to be a workable solution."

Parties cannot be required to participate in mediation or agree to any particular settlement of their differences. Instead, parties must willingly participate in the process with some intent to reach an accommodation. The mediator supports and facilitates the negotiation process, serving as an interpreter, suggesting alternatives, helping to draft language, and assisting in maintaining communication with persons not sitting around the table.

In effect, environmental mediation constructively channels conflict into compromise. The mediation process does not attempt to resolve the basic conflict or change attitudes. Instead, it attempts to develop a mutually agreeable approach for a specific issue or dispute. In the case of toxic waste sites, disputes might focus on the geographic extent of public agency water well sampling, sampling methods, and cleanup strategies. The product of successful environmental mediation is usually a signed agreement stating the responsibilities of each party. The mediator is not a party to the agreement.

Parties to a dispute must each have a source of power and influence. Benevolence or charity can never lead to successful mediation and a joint decision process. Each party must recognize the right of all other negotiating parties to participate equally in the decision-making. The threat (or reality) of a lawsuit may be needed if government agencies are to participate in a mediation process with citizens. Citizens (or citizen organizations) must have a recognized base of power in order to participate effectively.

It is often believed that government agencies will not be willing to participate in mediation since it removes some of the agency's discretion in program direction. The history of environmental mediation, however, indicates that government agencies are willing participants when a dispute is significant. In effect, the government agency recognizes that resolution of a dispute through court action will be time-consuming and expensive, and that successful resolution of the dispute will benefit all parties.

When toxic waste sites are found, local governments (as well as citizens) may be active participants in mediation. Local governments may recognize the need for mediation and be a catalyst in beginning a negotiation process. Local governments may also participate directly.

If the State of Michigan initiates a cost-sharing program for toxic waste site cleanup, local governments will have a strong and direct role in cleanup activities. It is far better to resolve differences among parties at an early stage than to allow resentment and frustration to build up so that negative actions and further distrust result.

Parties are neither "right" nor "wrong" in a mediation process...they are joint participants in a process for resolving the dispute. The Regional Office of the Institute for Environmental Mediation in Madison, Wisconsin has support services for environmental mediation available to communities on a request basis.

RECOMMENDATIONS FOR LOCAL GOVERNMENT ACTIVITIES

The need and appropriateness for local governments to be active participants in toxic waste site cleanup or communication with residents will vary from case to case. The suitability of different methods and activities will also vary. Based upon the experience of the Rose and Springfield Township toxic waste sites, however, it is clear that local governments can provide useful cleanup support and communication services. Specific recommendations are as follows:

1. When state and county agencies meet to determine roles and responsibilities for toxic waste site cleanup, local government representatives should be included. Local officials should be contacted at the earliest possible stage and considered partners in the cleanup process. The roles and responsibilities of local governments should be clearly and specifically defined in a manner similar to responsibilities of other agencies.

2. When governmental responsibilities are defined, responsibilities and approaches for communication with residents should be discussed and detailed. In many cases, each participating agency will want to be responsible for a part of the communication. Approaches to be used for maximizing communication with all residents should be agreed upon. Consideration should be given to newsletters, public meetings, the appointment of an ombudsman, the creation of a citizens information committee and/or technical review group.

3. The need to communicate with residents beyond the geographic area of water well testing should be recognized. As demonstrated by the Rose and Springfield Township cases, social and economic impacts can be experienced by residents

even when groundwater contamination has not occurred. It is the threat or fear of future contamination, as well as publicity about contamination (real or exaggerated) that adds to the impacts. Communication program should extend to the area where residents may be affected, and in some cases, may extend to the entire jurisdiction.

4. A citizen handbook on toxic waste site cleanup and groundwater threats should be prepared for statewide use. Basic concepts, information about agency roles, state laws and information about techniques for water well sampling could be included. After emergencies have been declared, there is often no time to develop extensive background public information materials.

5. Personal communication on a one-to-one basis with residents should be included in a local communication program. The threat or reality of groundwater contamination is a serious and difficult problem for any household. The opportunity to ask questions and obtain first-hand information is essential. Without personal communication, residents will believe what they hear from neighbors, television and newspapers. Personal visits, phone calls and/or public meetings with residents are excellent tools for open communication.

6. If differences between government agencies and citizens appear to be leading toward legal action, environmental mediation should be considered as an alternative. It is much more sensible to direct limited public and private funds toward cleanup of sites than it is to use the funds for legal fees and court cases.

Finally, it is recommended that local governments assist in the process of documenting community experiences and impacts from toxic waste site cleanup activities, as well as other groundwater contamination issues. There is sometimes a tendency to want to "hide" the fact that a toxic waste problem has occurred. Statewide, however, a continuing record of experiences and governmental agency roles and responses should be kept. The Rose and Springfield Township experiences offer useful information for citizens and officials in other communities. A review of other case examples would lend additional insights into community impacts, ways of reducing social and economic costs to residents, and local government roles.

APPENDIX A: INTERVIEW GUIDE

APPENDIX A -

INTERVIEW GUIDE

The interview guide provided a framework for interviews with residents. The first part of the interview focused on the resident's involvement with the toxic waste sites and water well testing. The second part of the interview was open ended questions concerning the social and economic impacts of the toxic waste site on the household and the community as a whole. Following the open-ended discussion, a listing of specific social and economic impacts which might apply in Rose and Springfield Townships was shown to the interviewee.

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Interviewer's Name:

Date: Time:

SOCIAL AND ECONOMIC IMPACT STUDY

ROSE AND SPRINGFIELD TOWNSHIP TOXIC WASTE SITES

Resident questionnaire

Name: Township:

Address: Telephone:

Occupation: Number in Family:

Place of Employment: Age: (a) Under 20
(b) 20-40 Years
(c) 40-65 Years
(d) Over 65

Number of Years as Township Resident:

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1. HOW DID YOU FIRST LEARN ABOUT THE DEMODE ROAD (SHINDLER ROAD) TOXIC WASTE SITE?

2. WAS YOUR DRINKING WATER TESTED BY THE OAKLAND COUNTY HEALTH DIVISION?

3. DID YOU USE BOTTLED WATER DURING THE TIME THE TESTS WERE BEING CONDUCTED?

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4. HAS THE TOXIC WASTE SITE CHANGED OR AFFECTED YOUR HOUSEHOLD IN A SIGNIFICANT WAY? (Interviewer will record responses, probing for specifics.)

5. HAS THE TOXIC WASTE SITE CHANGED OR AFFECTED YOUR COMMUNITY (TOWNSHIP) IN A SIGNIFICANT WAY? (Interviewer will record responses, probing for specifics.)

6. HAS THE TOXIC WASTE SITE CHANGED YOUR RELATIONSHIP TO THE COMMUNITY?

INTERVIEWER: "HERE ARE SOME CARDS SHOWING COSTS AND EFFECTS WHICH HAVE BEEN EXPERIENCED IN SOME COMMUNITIES WITH TOXIC WASTE SITES. LET'S READ THE LIST TOGETHER AND SEE WHETHER THEY ARE PROBLEMS IN ______________________________ (ROSE OR SPRINGFIELD) TOWNSHIP."

(Interviewer will record responses, probing for specifics. To the extent possible, the person(s) affected, their locations in relation to the toxic waste site, and the duration of the effect will be detailed.)

CARD #1: COSTS TO INDIVIDUALS

a. Loss of Income

b. Costs for Professional Services:

   1) Legal advice

   2) Technical advice

   3) Medical expenses

   4) Laboratory testing

c. Lower Property Values
(or ability to sell property)

d. Relocation Costs

e. Loss of Business

f. Other private/personal expenses
(e.g., loss of crops, loss of livestock, alternative water supplies, etc.)

CARD #2: HEALTH EFFECTS

a. Physical Illness

b. Mental Illness

c. Psychological Effects

d. Concern about Future Health Problems

CARD #3: SOCIAL EFFECTS

a. Cooperation and Communication Among Neighbors

b. Feeling of Fear or Uncertainty

c. Community Appearance (aesthetics)

d. Family Relationships

e. Life Style and Activities

f. Personal Plans or Decisions

g. Community Image

h. Trust in Government

APPENDIX B: INTERVIEW SUMMARIES

APPENDIX B -

INTERVIEW SUMMARIES

Interview summaries from meetings with Rose and Springfield Township residents and several realtors familiar with the area are included in this appendix. The statements and opinions expressed are the views of the person interviewed -- not the interviewer. Each interview summary was reviewed by the person interviewed to insure accuracy.

To fully understand the comments made during the interviews, it is necessary to be familiar with the case history of events and activities related to the toxic waste sites in Rose and Springfield Township. A complete case history, based upon interviews with state, county and local officials, as well as files and records, is included in Chapter II of this report.

The interviews focus on the DeMode Road toxic waste site in Rose Township and on Shindler Road toxic waste site in Springfield Township. Two additional sites in Rose Township were mentioned by residents: (1) the Marlowe Landfill, which is believed by some residents to contain toxic wastes; and (2) the Cemetery toxic waste site, located approximately one-and-a-half miles from the DeMode Road site and discovered two years after the DeMode Road site. The Springfield Township site was originally owned by Mr. Joseph Nickson; the Rose Township site was originally owned by Mr. Leonard Dorsey. Chapter II of this report should be referenced for further background information.

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INTERVIEW WITH ROSE TOWNSHIP RESIDENT
(WITHIN ONE MILE OF DEMODE ROAD TOXIC WASTE SITE)

Telephone Interview, February 13 and March 20, 1982

BACKGROUND

Mrs. "R" has lived in her home on DeMode Road for many years. Her family is now grown, although a daughter lives nearby.

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

Mrs. "R" and her husband were among the Rose Township residents who complained about the dumping in the late 1960's. Trucks would go past her house making noise, and they knew the trucks were dumping in an out-of-the-way area not far from their home. Whenever they saw the dumping, they contacted Mr. Nelson, the Rose Township Supervisor at that time. The Township Building Inspector, Mr. Klemp, lives in the area and knew the dump site well. Very little seemed to result from the complaints from residents in the late 1960's.

WAS YOUR DRINKING WATER TESTED?

Mrs. "R's" water was tested by the Oakland County Health Division, but no contaminants were found. She did not drink bottled water or pay for her own laboratory tests, since the results were good.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

The toxic waste dump site has not significantly affected Mrs. "R". She has not incurred any extra costs or expenses as a result, and the problem has not caused changes in the household.

Nevertheless, Mrs. "R" wonders about the future. Will the groundwater stay clean? Can the site be completely cleaned up? What is the actual contamination on the site itself? Mrs. "R" is interested in the results of the technical studies, and hopes that they will be reassuring so that she won't have to worry about the health of herself and neighbors.

Mrs. "R" also wonders about the effect of the toxic wastes on Chase Lake, a nearby lake used for fishing. Has the lake been tested?

The newsletter that came for some time was helpful. Why was it stopped?

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY AS A WHOLE

She believes that residents living close to the toxic waste site share her concern, fear, and sense of uncertainty about the future.

The toxic waste site appears to have had a strong effect on the Township as a whole. She is not aware of any property in the Township which has sold recently and suspects that the toxic waste problem is the reason why. The fact that taxes continue to increase makes the situation very confusing for residents.

She has a real sense now that chemicals and pollutants are everywhere. The situation is so sad; what will society do with its wastes? Nuclear wastes may be more of a problem than toxic wastes.

She knows that some people have no trust of government or agencies. When contamination is found in a one water test and not in later tests, significant questions must be raised.

She knows that families are raising vegetables on or near the Dorsey family (they grow very large)...she has eaten some of the potatoes herself. Since the vegetables are not directly adjacent to the toxic dump, she assumes that there is no health problem. If there is a cause for conern, she would like to know about it.

INTERVIEW WITH ROSE TOWNSHIP RESIDENT
(WITHIN ONE MILE OF DEMODE ROAD TOXIC WASTE SITE)

February 19, 1982

BACKGROUND

Mr. "Z" has been a life-long resident of Rose Township. He has been a farmer all of his life (either part-time or full-time), and also worked at Pontiac Motors for 25 years (he is now retired).

Mr. "Z" has served as a Board of Review member for six years, and as a result is very familiar with property sales and land value trends. In addition, he lives just within a one mile radius of the DeMode Road toxic waste site.

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

It was common knowledge in the community that trucks were unloading materials at DeMode Road in the early 1970's. Barrels would sometimes roll off the trucks and there were citizen complaints. The DeMode Road site was viewed as a nuisance, but there was no knowledge of toxic wastes or health hazards.

Mr. "Z" learned about the toxic wastes in the barrels through radio and television.

WAS YOUR DRINKING WATER TESTED?

Yes. Toxic materials were not found in his drinking water.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

Mr. "Z" has spent many hours talking with residents about the effect of the toxic waste site on their property values (in his capacity as a member of the Board of Review, which is responsible for the review of the assessment roll).* Apart from meetings and personal time, however, he has not incurred any special expenses related to the toxic waste concern.

Even when the toxic waste site was discovered, he was not overly concerned about his drinking water. He intends to stay in the community and does not think that problem of selling property will affect him (since he will not be selling property).

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY AS A WHOLE

In Mr. "Z's" view, the DeMode Road toxic waste site has hurt the Township as a whole more than individuals. Although individual families have incurred expenses and are worried, the damage to the Township's "image" has been the greatest impact. Because of the headlines and publicity about Rose Township and toxic wastes, people who might be interested in property in Rose Township are no longer interested.

The reputation of the Township is widespread. One resident noted that a relative in Iowa had heard about Rose Township and toxic wastes.

In Mr. "Z's" view, specific effects on Rose Township individuals and families include:

- Costs for outside water testing: He knows one household which paid $600 to have their water tested.
- Problems in selling property: Property throughout the Township has been difficult or slow to sell. He believes that prices being received are lower than they would be if the toxic waste problem had not occurred.
- Relocation: Although he is not sure, one family within a two-mile radius of the site moved to Livingston County after the toxic wastes were found. The family was on a vegetarian diet, and very concerned about proper health. The toxic waste incident could have been a factor contributing to their decision to move.

Much of the problem has stemmed from the adverse (and extensive) media coverage. The media coverage was not in line with what was found about the water wells (wells turned out to be o.k. at present).

In general, Mr. "Z" doesn't think that older persons who have lived in the Township for many years are as concerned as younger families that have just moved in.

Many people fear the health department or do not believe what they are told.

*NOTE: The history of the actions taken by the Board of Review related to tax assessments was not discussed, since the chronology of events had been discussed with the Township Supervisor and another Board of Review member prior to the time of the interview with Mr. "Z".

INTERVIEW WITH ROSE TOWNSHIP RESIDENT (WITHIN ONE MILE OF DEMODE ROAD TOXIC WASTE SITE)

March 1, 1982

BACKGROUND

Mr. "V" is a businessman in Rose Township. His business is related to crop production and sales to the public. Since 1947, he has been a businessman in Rose Township, although he has operated at two different sites.

Mr. "V" has been involved in Township affairs for a number of years. He served as Township Supervisor from 1976-1978. Prior to 1976, he served on the Township Board of Review and considered requests from residents for property tax adjustments.

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

The newspapers were the first source of information about the toxic wastes at the DeMode Road site.

The fact that barrels were being dumped, however, was known for a number of years. In some cases, barrels were dumped in the roadside ditches. Township officials for many years talked about "cleaning up the DeMode Road mess." The contents of the barrels, however, were not known to be toxic chemicals.

Mr. "V" first heard about the DeMode Road site in relation to toxic wastes through Consumers Power Company. Natural gas pipelines were being placed at the back side of the DeMode Road toxic waste site, and there was concern that toxic materials in the barrels might eat a hole in the high pressure gas line.

WAS YOUR DRINKING WATER TESTED?

The water at Mr. "V's" business was tested by the Michigan Department of Agriculture. Toxic chemicals were not found. The well at his home was also found to be clean.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

Since Mr. "V's" well showed no evidence of toxic chemicals, Mr. "V" and his family have not been directly affected by the dump site. They do have some concerns about the future, however, since the direction of groundwater flows and toxic chemicals is not known.

The only direct cost to Mr. "V" in relation to the toxic waste site has been increased costs (and coverage) for business liability insurance. The presence of the toxic waste site made him realize that his business could be ruined if a well problem were found. The cost to the business for the insurance has been substantial, since the premiums essentially tripled in cost.

Mr. "V's" biggest concern has been the possible effect of the toxic waste site on his business. He was afraid that former customers would not return because of the publicity about the toxic wastes, even though his water is clean. Fortunately, business has remained strong since 1979 and there has been little effect. Several customers inquired about the toxic wastes, but proximity to the sites has not hurt business.

Mr. "V" considered the possibility of paying for a property appraisal so that he would have additional factors to support his request for property tax reduction. The realtor he talked with advised against it, because of the difficulty of determining value.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY AS A WHOLE

It is his view that the DeMode Road toxic waste site and questions about the Marlowe Landfill have lowered property values in Rose Township. The publicity about the toxic waste site creates a unique situation which should be considered in valuing property for tax purposes. The publicity will pass, but the adverse effects on marketability of property will stay.

Community reaction has been one of concern, but it has been expressed in different ways. Newer residents tend to challenge the way things are done in the Township, such as zoning, building inspection procedures, etc. The younger, newer residents seem to make snap judgments and have been very vocal at meetings. Older, long-time residents of Rose Township were dismayed at all of the events -- the toxic waste site itself, potential problems with the Marlowe Landfill, and the public outcry.

Personal communication between citizens and government agencies is essential after toxic waste sites are found. The monthly newsletters from the Oakland County Health Division probably ended up in the wastebasket. It has been unclear what allowable tolerances of toxic chemicals actually are -- what levels create health problems?

The job of Township officials is to make problems like a toxic waste site known to community residents. Township officials can also help by searching for cleanup funds. Townships have an important job to communicate with residents, although it can be one of the most difficult tasks.

INTERVIEW WITH ROSE TOWNSHIP RESIDENT
(WITHIN ONE MILE OF DEMODE ROAD TOXIC WASTE SITE

March 1, 1982

BACKGROUND

Mr. "F" has recently retired from his job as Conservation Officer with the Michigan Department of Natural Resources. He worked for the DNR for 33 years. The job of Conservation Officer involves general law enforcement, including snowmobile regulation, marine safety, game and fish regulations, dredge and fill permits, and serving papers for toxic waste sites.

He has lived in Rose Township for 20 years and at this present home (within one mile of the toxic waste site) for the past 15 years.

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

It has been known for some time that barrels were on the DeMode Road property. It was his understanding that the site was under Health Department order to clean up in 1970.

He is not sure how he learned that the contents of the barrels were toxic chemicals.

WAS YOUR DRINKING WATER TESTED?

His water well was tested by the Oakland County Health Division. Trace levels of some toxics were found but nothing that would cause a health concern. Mr. "F" assisted with the water well sampling by helping health department staff find the right homes.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

Through his job as Conservation Officer, Mr. "F" knew that the barrels existed and knew that they were full. The response of Mr. Dorsey following the court order was to dump some of the fluid, dig holes, and bury it. Mr. "F" knew that many barrels were still there.

Since his water is drinkable, the toxic waste site has not had a significant effect on his family's health or well-being.

He does feel, however, that his property has been devalued. All of Rose Townshp is hurt because of the publicity surrounding the event.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY AS A WHOLE

The toxic waste site has affected families in different ways. One friend of his wife who lives over a mile from the site continues to drink bottled water.

The publicity has affected property values throughout Rose Township. He knows of four homes which simply can't be sold (two are new homes). People from outside Rose Township now know of the dump sites.

The area of the toxic waste site is known as a dumping area. At one time, the Rose Township dump was located on some property not far from the toxic waste site.

He does not know if families have been under stress due to the event.

INTERVIEW WITH ROSE TOWNSHIP RESIDENT
(WITHIN ONE MILE OF DEMODE ROAD TOXIC WASTE SITE)

March 9, 1982

BACKGROUND

Mr. "O" is retired from General Motors where he worked in finance. He lives with his wife and son on Fish Lake Road, approximately one mile from the toxic waste site. He has lived in his present home for 31 years.

HOW DID YOU LEARN ABOUT THE TOXIC WASTE SITE?

Mr. "O" knew of the inital dumping of the barrels at the DeMode Road site, and in the late 1960's was one of the residents who protested to the Township Supervisor. He protested strongly, and finally agreed to talk with Mr. Doesey, the owner of the property about the dumping. Although a few barrels were partially covered and the dumping stopped, the barrels were not removed. Mr. "O" assumed that it was some sort of criminal activity since the barrels were not placed in the Township dump located nearby.

Mr. "O" pushed Rose Township officials to file a court case against Mr. Dorsey. As a result of the court case, Mr. Dorsey was ordered to clean up the property. Following the judgment (favorable to the Township), he pushed Township officials to enforce the court order. Mr. Dorsey was clearly not complying with the court order.

WAS YOUR DRINKING WATER TESTED?

His well was not tested initially by the Oakland County Health Division, and he protested. He lives just within one mile of the site and should have been included.

His water well was tested, however, when he requested it. After four tests, no toxic chemicals were found.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

Mr. "O" has worked to get the toxic waste site cleaned up. First, in the later 1960's, he protested to the Township. More recently, he has attended meetings locally and in Lansing to urge action.

Mr. and Mrs. "O" do not drink water from their well because they do not know what is in the groundwater. They drink lots of soft drinks. Mr. "O" does not trust the results of the Health Division tests. Without citizen action, he believes that the site will never be cleaned up.

In the 1970's, it was known that paint was on the site. Some people would come and take the paint for their own use. He learned that much of the materials were toxic at a Township meeting. He then went and looked at the barrels. Each barrel had a code number. He telephoned all four major automotive companies to obtain information concerning the paint codes on the barrels found at the site.

One day he was near the Dorsey property with his son (on motorcycles) and they met Leonard Dorsey. Dorsey took a shot at Mr. "O" and his son, so they immediately left. Mr. "O" believes that Mr. Dorsey has threatened his life as well.

In the Spring of 1980, he joined Toxic Substance Control Commission staff and representatives from other agencies for a visit to the toxic waste site. At a meeting in Lansing, he had alerted the Department of Agriculture to hogs which roamed the site, feeding. He was concerned that the toxic chemicals would get into the food chain. He was told that the hogs were under quarantine. Why, then, were the hogs roaming the site?

He brought a metal detector to the site during the field visit. Some state agency staff denied that there were barrels which were still buried. He used the metal detector and showed them some locations.

He believes that government and big business work together, and that people's health and welfare are not protected. The toxic waste problem on DeMode Road has not changed his views; rather, it has confirmed them. He does not believe that water supply tested by the Oakland County Health Division have been carried out with a real intent of protecting health. Answers from government agency staff have been evasive. Some officials who have attended meetings are arrogant, and seem to forget that they are working for the people.

The entire problem arose because of lack of enforcement in the early 1970's. If government had been doing its job and protecting people, the toxic waste concern could have been avoided.

No one is providing information to citizens. He never received the Oakland County Health Division newsletter, even though he signed up to receive the information. A great deal of the problem with communication (agencies with the people) is the attitudes of the agencies. Staff have a complete lack of sensitivity for people. Although he has attended a number of meetings in lansing on the toxic waste problem (especially Toxic Substance Control Commission meetings), he has never found anyone able to give a straight answer.

Mr. "O" believes in voicing his concerns and working for action directly. He does not trust elected government officials to get the job done.

Because of this distrust, he is considering testing his own water. One resident is organizing an effort for a "group rate" on water well tests (if they work together, the cost would be $60 for a test; otherwise, the cost might be $1,000 per test).

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY

In Rose Township, residents are concerned about all of the toxic waste sites -- the Booker Property, the Cemetery Property, and the Marlowe Landfill...as well as the DeMode Road site. Residents are very concerned about property values, especially since the toxic waste sites have devalued property throughout the Township (he has appealed his tax assessment every year).

Many people are worried about the long-term effect of the toxic waste site, even if they are not vocal at community meetings. Citizens are as concerned about property tax levels as they are about the toxic waste sites.

DeMode Road where he lives is the headwaters of the Huron River. It is possible that flows of groundwater and surface water could eventually effect everyone in the Huron Valley. People throughout the Huron River Valley should be alerted to possible dangers.

INTERVIEW WITH ROSE TOWNSHIP RESIDENT
(WITHIN ONE MILE OF DEMODE ROAD TOXIC WASTE SITE)

March 19, 1982

BACKGROUND

Mrs. "N" had lived on DeMode Road for approximately three years when the toxic waste site was "rediscovered" in 1979. The family had moved to Rose Township from Detroit to enjoy the rural atmosphere and clean air. Because of a change in Mr. "N's" job, they were trying to move Downriver. In the fall of 1980, they were successful in selling their home on DeMode Road and now live in the Trenton area.

Since moving to the Trenton area, Mrs. "N" has taken a job as director of a group home. While she was in Rose Township, she was active in community activities, including community-wide improvement projects and social activities.

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

The first word about the toxic wastes came from a neighbor. Even before August, 1979, the neighbor alerted Mrs. "N" to the barrels and suggested that she might want to find out why the barrels had not been cleaned up in the early 1970's. She doesn't recall how she heard that the materials in the barrels were highly toxic.

WAS YOUR DRINKING WATER TESTED?

The water supply was tested by state and county agencies. They received a personal telephone call from Dr. Locey telling them that the first sample had trace levels of toxic chemicals. Trace levels showed on the second test also, but beginning with the third round, the well tests were always clean.

The personal telephone call from Dr. Locey was helpful. He asked her to bring their son and daughter to the Oakland County Health Department for blood tests because lead had been found in their water supply. Fortunately, the blood tests indicated that there was no problem.

The Michigan Department of Agriculture told them not to eat vegetables from the garden because of possibilities of poisoning. Their soil was tested for toxic chemicals, but no report was provided by the Department of Agriculture. Mrs. "N" wondered why she never received results of the test.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

The DeMode Road toxic waste site has had a major and long-lasting impact on the family.

The "N's" became extremely concerned when lead was found in their well. Their son had been having some difficulties at school which they thought might be related. The stress and worry was very severe for the 4-6 week period while they waited for the results of the tests. Fortunately, no problems were found, and the learning disability problem has corrected itself.

Before the toxic waste site was brought to public attention, their house had been for sale. In fact, a potential purchaser had been found; the potential purchaser was not interested when the toxic waste site was found. They thought that they would be stuck with the house in a location which was over an hour from Mr. "N's" job.

They took the house off the market when the toxic wastes were found. People in the community soon learned that some contaminants had been found in their well and expressed sympathy. She felt "marked" and felt that she had lost her freedom. She felt like she was a hostage trapped in a situation over which she had no control.

It seemed to Mrs. "N" that government agencies should have acted on the site 14 years ago but did not. When it was discovered, she thought that they should act again...assuring public health protection, cleaning up the site, and providing an alternative water supply. She now realizes (after personnaly contacting state and county agencies) that this view was unrealistic. She realizes that removal of the contaminated soil from the site is an extremely expensive undertaking and will probably not be done. It if hadn't been for the public outcry and pressure, funds for cleanup would never have been made available in the first place.

It angered and frustrated Mrs. "N" that residents only felt sorry for her and did nothing to address the problem of the toxic wastes. Mrs. "N" felt that it was a community problem -- not just her problem. The issue was affecting the entire Township and should be addressed as a community. The Township Board wanted the site cleaned up, but at the time they were very busy with problems concerning the Marlowe Landfill and the recall threat. Supervisor Collin Walls assisted Rose Township residents by holding meetings and representing Rose Township in Lansing.

She felt very isolated because people didn't share her concern about possible health hazards and the need for community response. People don't understand that groundwater does move, or they assume that it follows the path of surface water. Many people simply did not want to ask questions or involve themselves.

If they could have afforded the cost, they would have pursued legal action. Because of their financial situation at the time, this was not an option. They also would have liked private laboratory testing of their well, but the $600 cost was prohibitive.

Their banker raised the question of whether it was even wise to continue payment on the mortgage...since the house might not have any value.

Finally, they decided to try to sell the house again. Mrs. "N" refused to consider selling without full disclosure of the toxic waste site to potential purchasers. No one thought that they could sell their home but they were successful. A family which had ties in the area made an offer which the "N's" accepted. The new purchasers signed a statement that they knew of the toxic chemicals and the results of the well tests. The "N's" lost about $20,000 on the sale, but they were free again to move.

"Mrs. "N" assumed an active role in following agency actions after the toxic waste site was rediscovered...she tried to keep in touch with activities. She continued going to Township Board meetings and tried to get the Township further involved in pushing for rapid cleanup. In talking with Board members, she stressed that the DeMode Road site was a proven toxic waste problem. The Marlowe Landfill, in contrast, was not a proven toxic waste threat.

Overall, there was little communication from the technical agencies to the people. It often seemed as if agency representatives were trying to sooth or placate the residents. The Oakland County Health Division newsletter was useful, but it should have been sent to everyone in the Township.

Initial results of water well tests were difficult to understand from the written letters signed by the Health Division. The complexity of the early reports on the water well tests combined with statements made by Health Division staff led to distrust of government agencies. For example, at a meeting concerning the Marlowe Landfill, a Health Division staff member said, in effect, "you're going to have a landfill in Rose Township whether you like it or not." She and others assumed that this attitude and the lack of sensitivity extended to the DeMode Road toxic waste site as well. Government agencies didn't seem to understand the position of residents and didn't seem to care.

After the toxic waste incident she wanted to move away from Rose Townshp and become anonymous. The family has many friends in Rose and she thinks that the Township is a wonderful place to live. In considering a move back to Rose Township or another rural community, however, Mrs. "N" would carefully research past land uses on a property. She would try to identify any activity on or near a site which might cause groundwater contamination.

During the uncertain period in the fall of 1979, she very much needed psychological support and counseling. There didn't seem to be anyone who was in her position or who could give her support. Even though she tried hard to alert other DeMode Road residents to the problem, she seemed to be all alone.

INTERVIEW WITH ROSE TOWNSHIP RESIDENT
(WITHIN ONE MILE OF DEMODE ROAD TOXIC WASTE SITE)

April 5, 1982

BACKGROUND

Mr. and Mrs. "W" have lived on Fish Lake Road since 1944. Mr. "W" is retired, although they sell vegetables they raise on their farm during the summer months.

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

In the late 1960's, the "W's" were contacted by a DeMode Road resident alerting them to the illegal dumping of barrels. They were also concerned, and responded by contacting the Township Supervisor. Mr. "W" went with the Township Supervisor to the site in the late 1960's to see how bad the problem had become. At the time, they were not concerned about toxic chemicals in the barrels.

WAS YOUR DRINKING WATER TESTED?

The "W's" water supply was tested by the Oakland County Health Division a number of times in 1979 and 1980. No evidence of toxic chemicals was found.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

When the toxic wastes were announced in 1979, they and their neighbors were scared. In addition to groundwater contamination possibilities, they were concerned about surface water since they sell vegetables. However, for them, the potential effect was always considered small because their surface water flows to their property from the west -- not from the direction of the toxic waste site.

Although they have not had direct costs related to the toxic waste site, the "W's" feel that all Michigan residents will end up paying. Public expenditures for cleanup is particularly a concern (and need) because other dumps or toxic waste sites are being found throughout the state.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY

Probably because there are few families living on DeMode Road near the toxic waste site, direct impacts on families have not always been visible. Throughout the Township, there is much concern about property taxes and slow home sales. It is difficult to say if the home sales slump has been caused by the toxic waste site.

INTERVIEW WITH ROSE TOWNSHIP RESIDENT
(WITHIN ONE-AND-A-HALF MILES OF DEMODE ROAD TOXIC WASTE SITE)

February 19, and April 1, 1982

BACKGROUND

Mrs. "C", her husband, and children have lived in Rose Township for five years. She works as a medical laboratory technician and is taking classes in environmental health and chemistry.

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

Mrs. "C" learned about the toxic waste site from her husband when she returned from a trip to visit relatives in Europe. She assumes that he heard about it through the radio or newspapers.

WAS YOUR DRINKING WATER TESTED?

Mrs. "C" lives just beyond the one mile radius, so her water was not tested by the Oakland County Health Division.

She is presently considering the possibility of having her water tested by a private laboratory for an estimated cost of $300.

EFFECT OF TOXIC WASTE SITE ON THE HOUSEHOLD

As a result of the toxic waste site and the reactions of government agencies, she does have a different view of government. It appears that state and county agencies deliberately withhold information about the nature of contamination at the toxic waste site and potential health effects. A very "simple" over-generalized picture is given so as not to worry or disturb people.

When some officials talk to residents, they do so with a tone of "condescension", as if people can't understand what is really happening. It is also to the advantage of the agencies to not have a "problem" to handle...bureaucrats don't want the toxic chemicals there, so the reality is brushed over. An intentional effort to cover up the true situation seems to be present. Agency staff don't try to communicate with residents on a one-to-one-basis.

EFFECT OF TOXIC WASTE SITE ON THE HOUSEHOLD

Mrs. "C" was aware of potential health hazards from toxic chemicals through her college studies and related reading. She feels that the story at DeMode Road is not complete -- it will be years before the full impact on families in the Township is known.

She is very concerned about future health effects of toxic chemicals. Her 15-year old daughter began to show signs of asthma soon after the family moved to Rose Township. Could these health problems be related to toxic chemicals in the water? The family does not drink bottled water, but Mrs. "C" is considering having her water tested by a private lab. She is in the process of contacting neighbors to obtain a group of participating families (a group rate in water testing is available at one laboratory).

Mrs. "C" has been extremely concerned about the toxic waste site since she first learned of its existence. As a concerned citizen, she has attended numerous meetings in Rose Township, Springfield Township, and Lansing in order to understand the status of the cleanup. She routinely drives to Lansing for meetings of the Toxic Substance Control Commission. She intentionally took a night shift in her laboratory which would permit the travel to Lansing during the day. Cost for gas averages $10-$20 per trip. Her long distance telephone bill for calls related to the DeMode Road toxic site averaged $100 per month for the first 5-6 months.

Communication between state and county agencies and affected citizens has been very poor, in Mrs. "C's" opinion. The exception is the Toxic Substance Control Commission which has shown concern for the people affected. She has recently been appointed by the Rose Township Board to be an observer at meetings of the Toxic Substances Control Commission.

Mrs. "C" had heard that doctors in the area had been informed of the health threat. She contacted a clinic in Davisburg (mid-way between the DeMode Road and the Shindler Road toxic waste sites) to find out what advice was being given. The doctor contacted said that the ground filters out all pollutants and that there was no public health threat. Mrs. "C" realized that the statement on ground filtration was not true.

She then proceeded to search for information on toxic wastes and health hazards wherever she could find it. She now attends technical conferences on toxic chemicals at the University of Michigan, Michigan State University, and Chicago. The expense of the conferences is paid by her household, although it is of value for her college courses as well as concerns as a citizen.

Mrs. "C" believes that publicity about the toxic waste site benefits Rose Township by keeping the Township a priority for cleanup. However, at the same time, publicity has the negative effect of lowering property values. She believes it is important to get people in the area involved, because of the potential effect on their future. She has spent much time talking personally with friends and neighbors. She has also stayed in touch with several concerned citizens at the Shindler Road toxic site, the Swartz Creek toxic waste site (near Flint, Michigan), and Rose Township residents living near the Marlowe Landfill.

The costs in time and energy to monitor government activities have been significant, and Mrs. "C" believes that the toxic waste issue has significantly changed her life. She is committed to addressing the toxic waste problem and agency responses and is deeply concerned about future impacts on the health of her family.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY AS A WHOLE

It is impossible to separate the DeMode Road toxic waste site from the issues surrounding the Marlowe Landfill. Both were in the public's eye at the same time and became interlinked.

Both events led directly to political antagonism. Some residents (especially several women living near the Marlowe Landfill) were very vocal, demanding that the Township remedy some of the perceived problems and hazards at that site. One attempt for a recall election was abandoned. The way in which the DeMode Road site and the Marlowe Landfill had been "handled" by Township officials was the critical political issue. The current officials were supported.

She has talked to many residents on DeMode Road and Fish Lake Road, and found only a few people who were as concerned as she is about the eventual cleanup. She does not know the reasons why, although most families who have not responded strongly to the presence of the toxic wastes have been long-time residents.

INTERVIEW WITH ROSE TOWNSHIP RESIDENT
(WITHIN ONE-AND-A-HALF MILES OF DEMODE ROAD TOXIC WASTE SITE)

April 12, 1982

BACKGROUND

Mr. and Mrs. "Y" live just over one mile from the DeMode Road toxic waste site and less than three-fourths of a mile from the more recently-discovered Cemetery site. Since moving to Rose Township, they have been active in civic organizations, including the JC's and the Jaycettes.

HOW DID YOU FIRST LEARN BOUT THE TOXIC WASTE SITE?

Mr. "Y" first heard about the DeMode Road toxic waste site while attending a meeting of the Michigan JC's organization in the Muskegon area. The group talked about the pollution problems from toxic wastes at the Hooker Chemical plant in Muskegon while sitting around the campfire. Ironically, Mr. "Y" heard from a Rose Township resident the next day that toxic wastes had been found in Rose Township.

WAS YOUR DRINKING WATER TESTED?

The "Y's" live just over one mile from the DeMode Road site, and their water supply well was not tested by the Oakland County Health Division. According to Health Division staff, only random testing was completed in their neighborhood.

Through a request to the Toxic Substance Control Commission their well was finally tested by the Health Department. No contaminants were found.

In July, 1980, the "Y's" joined with a group of residents to have their water tested by a private laboratory. Approximately 16 homes were tested at a cost of $275 per homeowner. The most significant finding from the private laboratory test was that trace levels of lead were present.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

When the DeMode Road toxic waste site was first discovered, the "Y's" began attending meetings (Township meetings and meetings with other citizens) to learn about the problem and to determine what could be done. Although the Marlowe Landfill was also a concern of citizens in the area, their personal concern was for both the DeMode Road site and the Landfill.

The "Y's" became very concerned about the schedule that public agencies were following for cleanup of the DeMode Road site. It was their view that cleanup was proceeding too slowly and that the Michigan Department of Natural Resources was not fulfilling its original promise of site cleanup. They felt that the Township could do a better job of facilitating the cleanup by pressuring state officials, and by communicating with citizens. Township officials said, in effect, "a toxic cleanup is more than a Township can handle...we're standing behind the Health Department and the Department of Natural Resources." The "Y's" felt that a stronger Township response was needed because the future of the Township and the health of their children were at stake.

In response to his concern about the Township response, Mr. "Y" decided to run for Township Supervisor on the water issue. His platform for the Fall, 1980 election was based upon the Township response to the toxic waste issues. He felt that the Township should appoint a citizens' committee to review information and help develop a strategy for dealing with the problem. Mr. "Y" also proposed a northwest Oakland County association of townships to lobby for a more effective state response. Mr. "Y" lost the election, and has since not been as involved in community acitvities as he was formerly.

The "Y's" bought bottled water at a cost of $.50/gallon for about a year. They discontinued their use of bottled water because of the expense. Mr. "Y" was temporarily out of work, and with their large family the cost became too great. Although they drink the water from their well, they are very concerned about the long-term effect on the family's health (they feel guilty but have no choice).

A major economic impact of the toxic waste site on Rose Townshp is the effect on property values. Between 1980 and 1981, their assessed property value increased by $6,500. In view of the economy and the toxic waste site, this seemed impossible. They appealed their assessment to the Board of Review and the State

Tax Commission, and showed the evidence of trace levels of lead in their wells. As a result, their assessed value was lowered by $1,600 by the State Tax Commission. The "Y's" believe that the Township should have a policy that all perspective new Township residents be notified of the potential of toxic chemicals in the water.

In the Fall of 1979, he worked with several other citizens to organize a legal fund. They paid some funds to an attorney but they were returned when legal action was not pursued.

EFFECT OF TOXIC WASTE SITE ON THE COMMUNITY AS A WHOLE

The "Y's" strongly believe that people need to involve themselves in governmental affairs if change is to occur. Citizens need to participate in Township meetings and bring concerns to local officials. Some citizens did respond to the toxic waste site by participating in meetings.

Some citizens are very concerned about the toxic waste problem, while others are not concerned. The greatest problem is the uncertainty about the water -- is it clean or not? This unanswered question affects the community's response.

INTERVIEW WITH ROSE TOWNSHIP RESIDENT
(WITHIN ONE-AND-A-HALF MILES OF DEMODE TOXIC WASTE SITE)

April 12, 1982

BACKGROUND

Mrs. "B", her husband and two children have lived in Rose Township for six years. They moved to Rose Township from the City of Detroit. The "B's" live approximately one-and-a-half miles from the DeMode Road site and three-fourths mile from the Cemetery site.

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

Mrs. "B" first learned about the DeMode Road toxic waste site through television and newspapers.

WAS YOUR DRINKING WATER TESTED?

The "B's" felt that the Oakland County Health Division should test their water because they live within one-and-a-half miles of the DeMode Road toxic waste site. She wrote a letter requesting the testing, but no response was received.

They would have considered testing their water through a private laboratory, but learned from other residents that the cost would be $700 or more and would need to be handled by an out-of-state laboratory.

The family has been drinking bottled water since the Fall of 1979.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

The greatest impact of the toxic waste site on the family has been worry and stress, especially when the toxic waste site at DeMode Road was first found. A neighbor's well was tested and was found to have low levels of lead. As a result, they have been worried about their own water and health effects on their children.

At one point, her son was having health problems which Mrs. "B" thought could be related to the water. Her doctor assured her that a virus was the cause of the problems and not the water.

In addition to the cost of bottled water, the toxic waste site has affected their property values. They have appealed their tax assessment to the Rose Township Board of Review but they don't know what the effect will be. It seems harder to sell homes anywhere in Rose Township. Friends in Canton and other communities have heard about the toxic waste sites and mention the problem to her.

She is particularly concerned that chemicals will stay in the soils and groundwater, even if the DeMode Road site is cleaned up. The "B's" feel trapped -- the only way they can sell their home in the future is if the buyer is not aware of the dump sites.

She did not trust government agencies before the toxic waste sites were found, and the government response has not changed her views.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY AS A WHOLE

Different people in the neighborhood have reacted to the toxic waste site in very different ways. Some people are very concerned and some are not concerned at all.

INTERVIEW WITH ROSE TOWNSHIP RESIDENT
(WITHIN ONE-AND-A-HALF MILES OF DEMODE ROAD TOXIC WASTE SITE)

April 12, 1982

BACKGROUND

Mr. and Mrs. "E" and their two children have lived on Blue Water Road for five-and-a-half years. Mr. "E" is an electrician and active in the Jaycee's. Mrs. "E" is very active in the Jaycettes. Both organizations are active in Rose Township community improvement projects. The Jaycettes are presently focusing on Township government and attend every Township Board meeting to better understand the way government works.

The parents of Mr. and Mrs. "E" live in northern areas of Rose Township. Both Mr. and Mrs. "E" grew up in the Township and have friends throughout the area.

HOW DID YOU LEARN ABUT THE TOXIC WASTE SITE?

In the summer of 1979, several Jaycee members, including Mr. "E" picked up one barrel of red paint from near the DeMode Road toxic waste site. The barrels were picked up from the backyard of a Jaycette member living very close to the dump site -- barrels had actually been placed on the property. The barrels were carried in a pickup truck and partially spilled.

Soon after the barrels were transported, the "E's" received a telephone call from the Oakland County Health Division inquiring about the paint, who was exposed to the paint, and other aspects of the situation. The Health Division staff telephoning were very secretive and never told them the nature of the problem. The Health Division seemed particularly concerned about the paint being spilled in their driveway, although an inspection was never made by the Health Division. The red paint was stored at a neighbor's property for over 18 months, even though requests for pickup were made.

When the DeMode Road toxic waste site was announced in the newspapers, Mrs. "E" understood the nature of the concern.

WAS YOUR DRINKING WATER TESTED?

The "E's" have never had their drinking water tested by Oakland County.

In 1979, the "E's" asked the Oakland County Health Division to test their well. They were told by the Health Division that they would be placed on the list but no follow-through ever occurred. Health Division staff was seen testing some wells, so they do not know why they were not included. In the Fall of 1981, when they again requested testing, the Health Division explained that they had "run out of bottles."

The "E's" felt that they should have their water tested due to proximity to the Cemetery site as well as the DeMode Road site. Health Division staff told them that initially only the five homes directly adjacent to the site would be tested. If problems were found, the radius of testing would be extended.

When the "E's" inquried about private water supply testing laboratories, Health Division staff gave them the name of a lab which would test for 20 chemicals at a cost of over $1,000. (Basically, testing for all materials found in the barrels at the DeMode Road site.) The expense was too great for them to consider the testing.

In the near future, the "E's" plan to join with other families in the area to have private well testing completed with a "group rate." Although only a few chemicals will be tested, it should provide useful information.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

Reflecting the significant effect that the DeMode Road toxic waste site has had on the family, the "E's" now drink only bottled water. When the DeMode Road site was first announced in 1979, they were concerned but not enough to take action. When the Cemetery site was found, they became very concerned about their children's health.

For several months, the "E's" drank bottled water purchased at the grocery store ($.59/gallon; 5-6 gallons/week). Now a friend brings water from Fenton for several families. Because of the uncertainty of chemicals moving in the groundwater, the "E's" will never go back to drinking groundwater.

They have talked with a well driller about digging a new and deeper well (they have a shallow, 30-foot well at present). The well driller advised against a new well, pointing out that contaminants could be in deeper locations. Because their well is shallow, surface runoff from the DeMode Road and Cemetery toxic waste sites are a major concern.

The toxic waste problem has affected their use of Buckhorn Lake (they live across the street from the Lake). Mr. "E" no longer fishes the lake for his own recreation. The family used to have fish fries with friends; such parties have now stopped. Mr. "E" does take his two children fishing occasionally, but the fish are always thrown back.

Relatives and friends in the Milford/Highland area, as well as Flint, have heard about the toxic waste problems and keep bringing it up in conversation. The toxic wastes will certainly affect sales of homes in the area.

The "E's" are very concerned about hazards at the site. Although a gate with lock has been put up, there are no signs warning people (such as kids on motorcycles) about the toxic wastes. The Health Division newsletter said that signs have been posted but nothing is yet on the site.

For some time after the toxic waste site was first found, the "E's" and other citizens assumed that the Township was against them. They now understand that Rose Township officials are pushing for cleanup. Complete cleanup is important; there may be more hazards from leaving the site half cleaned up.

In general, it has been hard to believe the governmental agencies. The agency staff doesn't seem to be telling the entire story...as if they get tired of talking with citizens. Staff does not show signs of concern or understanding of resident's problems. The Toxic Substance Control Commission is an exception; the agency seems very responsive.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY

Different people in the Buckhorn Lake area have responded to the toxic waste sites in very different ways. Older, long-time residents who have always drunk the water tend not to be concerned. Other families, like the "E's", are concerned about the future health of their children.

The use of Buckhorn Lake has definitely been affected by the toxic waste sites. In past years, 10-12 ice fishing houses have been on the lake. This winter, no ice fishing shacks were seen.

INTERVIEW WITH ROSE TOWNSHIP RESIDENT
(WITHIN TWO MILES OF DEMODE ROAD TOXIC WASTE SITE)

April 12, 1982

BACKGROUND

Mrs. "I" and her husband live two miles from the DeMode Road toxic waste site and two miles from the Marlowe Landfill.

They have lived at their property for over 20 years, and in their present house for five years. The "I's" sold their original house on the property a number of years ago and moved north. Five years ago, they returned to Rose Township.

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

Mrs. "I" doesn't remember precisely how she learned about the DeMode Road toxic waste site. She believes that it was through a neighbor or the newspaper.

WAS YOUR DRINKING WATER TESTED?

When they moved into their present home five years ago, she noticed a funny odor in the well. At that time, they had their well tested and found certain minerals which are naturally occurring. Since that time, the "I's" have been using bottled water for drinking and cooking purposes.

When the toxic waste site was rediscovered, Mrs. "I" asked the Oakland County Health Division to test her water. The request was refused since they live two miles from the site.

The "I's" joined with a group of citizens to have their wells tested. By working as a group, a private laboratory tested each well for PCB's and lead (cost of $100/well). PCB's and lead were not detected in their well.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

The family is concerned about the potential effect of the DeMode Road toxic waste site and the Marlowe Landfill on their groundwater. Because they are within two miles of each site, they are equally concerned about the two. The Marlowe Landfill is a concern because it is believed that toxic liquid wastes were placed in the Landfill in the past years.

Direct expenses incurred by the "D's" include:

- Cost of well testing - $100 for one test (PCB's and lead)
- Cost of attorney's fees - less than $100 (through group of concerned citizens)
- Cost of bottled water - $1.00/week (two gallons)

Although the "I's" started to use bottled water five years ago, the toxic waste sites added additional reasons for continuing. Even if they had been drinking their well water in the Fall of 1979, they would have used bottled water after hearing of toxic wastes. Mrs. "I" is still uncertain about the safety of her groundwater.

They observed two dead raccoons last spring along the creek that runs through their property. It is unusual to find two dead raccoons together and they wonder what could have caused the deaths.

When the toxic waste site was found, they became concerned about their home garden and possible dangers in the soils. Mrs. "D" telephoned an office (she is not sure which agency) to inquire and request soil tests. No one came out to check the soils. As a result of the way the PBB crisis was handled in the 1970's, Mrs. "I" is distrustful of the Michigan Department of Agriculture.

She is very concerned about property values and tax assessments. The "I's" do not understand how their assessed value can continue to increase in view of the toxic waste site and the Township-wide concern. They appeal their property assessment every year.

The combination of the toxic waste site, the Marlow Landfill, and the slow economy have devalued their property. Mrs. "I" believes that she could not sell their home if it was put on the market. Real estate agents and contacts outside Rose Township say that the toxic waste site has affected property values in the community.

She went to meetings in 1979 and 1980 to find out what was happening. She has no trust in government -- either now, or before 1979 when the toxic waste site was rediscovered. She believes that politics control agency decisions, and that government agencies don't really want to help citizens.

EFFECT ON THE COMMUNITY AS A WHOLE

Mrs. "I" does not know how the toxic waste site has affected other families.

INTERVIEW WITH TWO ROSE TOWNSHIP RESIDENTS (DAUGHTER AND GRANDMOTHER) (BEYOND TWO MILES FROM DEMODE ROAD TOXIC WASTE SITE)

February 19, 1982

BACKGROUND

Mrs. "G", 87 years old, has lived in Rose Township most of her life. Her husband was at one time the Rose Township Clerk, and she served as deputy clerk. The family farm was located within one-half mile of what is now the Marlowe Landfill. Although she now lives in Holly, she has many friends in Rose Township.

Mrs. "G's" granddaughter, Mrs. "H", also grew up in Rose Township. Her family home was within two miles of what is now the DeMode Road toxic dump site. Her uncle still lives within two miles of the site. She now lives in Holly with her grandmother.

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

Mrs. "G" has been aware of trash dumping at DeMode Road and Shindler Road for many years. The DeMode Road site had old rusty paint barrels and was used for high school drinking parties (this was probably the old Township dump which is near the site of the toxic waste dump). The Shindler Road site was also a dump in a ravine...something like a family dump site with nothing but marsh.

Both Mrs. "G" and Mrs. "H" heard about the toxic wastes at the DeMode Road site location through newspapers and the media. They do not remember exactly how they heard.

WAS YOUR DRINKING WATER TESTED?

No.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

Both Mrs. "G" and Mrs. "H" are concerned about the effect of the toxic waste dump sites on Rose Township as a community. Direct costs or problems related to the toxic wastes have not been incurred by either.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY AS A WHOLE

The DeMode Road dump site has affected residents throughout the Township and the fabric of the community. Effects on the community as a whole include the following:

> Problems in selling property: According to rumors and contacts from realtors, it is now difficult to sell property anywhere in Rose Township. Some realtors have said that when you mention the name "Rose Township", people look elsewhere.
>
> Views on government: Many people talk about a "coverup" by the Oakland County Health Department. They feel that the County came and went quickly (with water sampling program) and has now left the community on its own...there appears to many people to be no follow through. People may think there is a coverup because of the publicity about Love Canal and the thought that "government officials don't want the problem to get too big."
>
> Community tension: Although every person reacts differently to the toxic dump, there is a feeling of community uneasiness. Residents have questions and concerns about the future.

Mrs. "G" elaborated on the community tension problem. She noted that in former years, the Township and the community would have found a way to solve the problem without the publicity. Today, with younger and newer residents in the Township, crises occur.

New residents and older residents have reacted differently to the problem. The newer residents have gotten excited; the older residents are calmer and work closer with the Township government. Long-time residents of Rose Township do not seem to be as affected as the newer residents. Even among long-time residents, however, there is some fear of difficulties in selling property when they decide to sell or leave.

Mrs. "H" (granddaughter) observed that residents who had wells tested and who used bottled water had ambivalent and varying reactions. The general feeling was to not discuss who was drinking bottled water. Because there was no source of information on who was having their well tested and drinking bottled water, rumors developed. Some people were suspicious and angry: why did their neighbor have his well tested but they did not? In general, the attitude was "we don't want to talk about it." Now that few families are drinking bottled water, these feelings may have changed.

INTERVIEW WITH ROSE TOWNSHIP RESIDENT (APPROXIMATELY THREE MILES FROM THE DEMODE ROAD TOXIC WASTE SITE)

February 16, 1982

BACKGROUND

Mr. "S" moved to Rose Township in September 1979, just as the news about the DeMode Road dump site was breaking into the media (public domain). Mr. "S" was relocating from the Chicago area and was totally unaware of either the DeMode or Shindler Road problems. Together with his wife and family, he lives on a small lake approximately three miles from the DeMode Road site.

Mr. "S" has a scientific background as a research chemist and volunteered his assistance to the Township Board. He was eventually asked to serve on the Rose Township Board of Review in 1980. As a result, the interview focused on social and economic impacts on Rose Township residents. He has not been personally affected by the toxic waste dump issue.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY AS A WHOLE

In the late Summer of 1979, two critical events occurred almost simultaneously. The significance of the potential problem at the DeMode site and the action by the Rose Township Board of Appeals to grant a variance to the Marlowe Landfill to increase its size by sevenfold. Several residents near the Marlowe Landfill became socially reactive, originally urging a recall of township officers because of the Marlowe problem, while at the same time urging township officials to take immediate action on the DeMode site.

As a result of a series of Township meetings with representatives from the Oakland County Health Department and the Michigan Department of Natural Resources, resident concerns were raised to even a higher level. The Oakland County Health Division representative supported Marlowe's position concerning expansion. No assurance was given that the County was going to provide a better, safer landfill.

It is his view that much of the effect of the DeMode Road toxic waste site on the Township has been the result of the extensive publicity. Either DeMode Road or Marlowe Landfill (or more recently, the Cemetery toxic waste site) were continually in the news. "Rose" has a nice ring to it -- and it is easier to include in newspaper headlines than "Springfield." As a result, Rose became associated with toxic wastes...an effect still being felt.

The degree of uncertainty about existing groundwater conditions was never explained to residents in the early meetings. Residents were also concerned about the direction of surface water flows, but questions were never answered.

The Township Supervisor organized a special Township meeting in August or September, 1980, for the purpose of answering resident's questions about the effects of the dump site. Although County Health Division staff answered questions which were scientifically accurate, residents were not appeased. Since it was known that toxic chemicals had spilled on the ground and leaked, residents did not feel that there were any assurances that well contamination would not occur again. Oakland County Health Division staff did say that you can't give a guarantee that further pollution will not occur. People, in turn, wondered how they would be able to sell their property.

At the Township Board of Review hearings in 1981 (hearings on the 1980 tax assessments), eight real estate agents and four brokers made statements. Some of the realtors represented themselves and others represented property owners. With one notable exception, the realtors and brokers said that although real estate in general was slow in sales, Rose Township was experiencing a decline greater than most. They noted that persons from outside the Township were aware of the dump site.

During the 1981 Board of Review tax hearings, two to three persons indicated that they had entered into sales agreements on land they owned, only to have them cancelled at the last minute because of fears of the toxic dump site or landfill.

In 1981, the Board of Review's action was to grant a reduction to all persons testifying because the impact of the DeMode Road dump site and the Marlowe Landfill together were affecting (reducing) property values throughout the Township. Proximity to the DeMode Road site or the Marlowe Landfill was not a factor in granting the reduction. The Board of Review took this action because they did not see any assurance that pockets of groundwater contamination would not result in the future.

A total of 396 persons appeared before the Board of Review in 1981, representing 550 parcels of land. Nearly all persons mentioned the toxic waste dump site as a factor affecting their property.

In summary, it is the view of Mr. "S" that the DeMode Road dump site, in conjunction with the Marlowe Landfill, has affected property values in Rose Township. Due to the uncertainty of the groundwater contamination and the potential for future pollution, the long-range effect on property values cannot be predicted.

NOTE: In a follow-up telephone interview, Mr. "S" reported on the March, 1982 Board of Review hearings (concerning 1981 property assessment). The Board of Review has found that the Oakland County Equalization Department (working as the Rose Township assessor) has not given any consideration to residents living adjacent to the Marlowe Landfill. He does not recall any DeMode Road residents appealing their taxes. The County based Rose Township tax increases on 12 legitimate sales from 1981. However, for the several properties which had lower assessments in 1980 as a result of the dump and landfill, the tax assessment was increased to remove any savings in taxes from the previous year (i.e., it has been assumed by the County Equalization Office that the initial reason for the tax reduction has now been changed.

TELEPHONE INTERVIEW WITH ROSE TOWNSHIP RESIDENT WITHIN ONE MILE OF DEMODE ROAD TOXIC WASTE SITE

April 26, 1982

BACKGROUND

Mr. "AA" lives on DeMode Road within one-half mile of the toxic waste site on DeMode Road.

WAS YOUR DRINKING WATER TESTED?

Mr. "AA's" drinking water was tested by the Oakland County Health Division. A low level of chemicals was found, but not enough to do any damage. Mr. "AA" drank bottled water when it was furnished by the Oakland County Health Division, and has continued to drink bottled water purchased in Detroit.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

The cost of bottled water is not significant, and is the only cost he has experienced related to the toxic waste site.

He is personally concerned about the toxic waste site and wants to see it cleaned up. He expects to begin attending meetings to find out what is happening. It is possible future groundwater contamination problems which are the concern.

In addition, Mr. "AA" has some concern about fish in nearby lakes. He plans to continue to fish the lakes, but will inspect fish very carefully to make sure that there are no signs of abnormalities.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY

The toxic waste problem in Rose Townshp (and other townships) is not just one or two sites -- it is the vast number of sites all over. Mr. "AA" believes that private businesses are paying up to $1,000 a barrel to people who will take away toxic chemicals...this is why toxic wastes end up by the wayside. Some people are impressed by the money, or need the money and will risk getting caught.

Some contractors and excavators have told Mr. "AA" that government agencies do not really want the sites cleaned up and are being slow. Contractors are afraid to complain because they depend on government agencies for contracts.

Some residents are very concerned and are having their water tested privately. Citizens don't always want others to know what is happening; citizens meet in small groups to figure out what they should do.

Some DeMode Road residents are not at all concerned about the toxic waste site. Citizens are sometimes pacified by comments from the Oakland County Health Division that the water is "o.k.". These people do not have information or knowledge about the potential effects of toxic chemicals on their health.

INTERVIEW WITH SPRINGFIELD TOWNSHIP RESIDENT (WITHIN ONE MILE OF SHINDLER ROAD TOXIC WASTE SITE)

April 13, 1982

BACKGROUND

Mr. "K" and his wife live on Shindler Road within one-half mile of the toxic waste site. When the toxic waste site was "re-discovered" in August, 1979, Mr. "K" made a commitment to his wife and himself to do what he could to solve the problem. In the process of talking and working with friends and neighbors, he emerged as a spokesman for some citizens and represented citizen interests in some meetings with agency staff. Because of Mr. "K's" unique role in the events following August, 1979, the interview focused on communication between citizens and agency representatives.

Mr. "K" devoted as much as 50% of his working hours to activities related to the toxic waste site for five-six months after the rediscovery. He works as a manufacturer's representative (Southfield office), and experienced some loss of income as a result of the activities. He made a deliberate choice to become involved in order to have peace of mind about the cleanup activities.

Primarily by telephone, Mr. "K" keeps in touch with about 50 residents in Springfield and Rose Township. Perhaps as many as 200-300 citizens are concerned and keep in touch with others. Both new and older residents are concerned.

THE PATTERN OF AGENCY-CITIZEN COMMUNICATION

After he heard about the toxic waste site, Mr. "K" began to telephone agency staff in Pontiac and Lansing to find out what was being done. He also participated in a meeting with agency representatives to develop a strategy for responding to the Rose and Springfield Township toxic waste sites (held in August, 1979 before the declaration of the emergency). Following the declaration, Mr. "K" attended some meetings of the Toxic Substance Control Commission and continued to stay in touch with agency staff by telephone.

Government agency staff view many citizens as being emotional with a "me first" attitude. This view arises because they get pressures from citizens to respond to crises and they do get contacted by some people who are not rational. At the same time, citizens often view agencies as not caring and political. Mr. "K" observed that government staff are well motivated and trying to do a job. There is sensitivity concerning the history of events (skeletons in the closet) but when talking about present and future actions, it is possible to communicate with agencies.

The meeting held by Springfield Township in early September, 1979 was a very emotional meeting. Pressure was put on agency representatives to respond. The meeting was valuable, however, because it allowed residents a chance to express their feelings and communicate the level of concern about the toxic waste sites.

Overall, there was a great failure and gap in communication between the agencies and citizens. The results of water well testing was communicated with the explanation that the results were "within the guidelines of the U.S. Environmental Protection Agency". The citizen response is always, "the chemicals shouldn't be there in the first place."

Communicating when there is a lack of information or the information is inconclusive is very difficult. Citizens really want to believe that there are no chemcials present, but they must be convinced that this is so by understanding the results of the tests. 1979-1980 was a dry year; TSCC experts and others have said that rainfall definitely influences migration of groundwater and possible contaminants. He and others felt very uneasy when the monthly water well sampling program was discontinued. Why was it stopped so soon?

ROLE OF THE MEDIA

The media publicity was a factor forcing governmental action. The media had a motivational response.

Unfortunately, the media also sensationalizes. It is a poor reporter of the real facts or events. In the fall of 1979, a group of residents were at Springfield Townshp Hall picking up water containers (empty). The media came in and almost staged a riot, implying that government was doing nothing to respond to the problem. This media coverage was very unfair.

LEGAL ACTIONS

Mr. "K" has joined with a group of other Springfield Township citizens in several legal actions. A Writ of Mandamus was filed in order to force agency action. One specific result of the Writ of Mandamus has been an agreement to do additional water well testing for the families involved in a lawsuit. The technical consultant to the residents will work with the technical expert for the Oakland County Health Division to work out a reliable sampling plan. Tests for a wide range of toxic chemicals will be done.

As a separate legal action, a lawsuit against industries connected with the materials found on the site has been filed.

NEED FOR GOVERNMENTAL PLANNING

The major challenge government faces is to avoid future toxic waste emergencies. It is critical that government, citizens, and business work together to achieve proper disposal of toxic and hazardous chemicals. A catalyst is needed to bring these parties together. The Township may be able to play a role as a catalyst.

The effort to develop a system for assessing risk from toxic waste sites in an objective manner is good. At the same time, there is a debt owed to Rose and Springfield Township because of the history of events surrounding the two sites. It is essential that the cleanup be completed and not left half-finished.

State resources do need to be allocated in a rational way -- citizen pressure shouldn't be the determining factor. At the same time, the impetus to solve problems in a positive way must come from the government.

ROLE OF THE TOWNSHIP IN COMMUNICATION

Townships have a definite role in communicating with agencies and citizens. Because of the history of the Rose and Springfield Township cases (and the declaration of the emergency), the full potential for the Townshp to serve this role has not been tested.

The Township Supervisor in Springfield was personally involved in the toxic waste emergency which greatly helped. The Township Supervisor is often a person who many people trust. In Springfield, the Supervisor brought common sense to the discussions which encouraged communication.

The Township might be the catalyst to bring government, citizens, and business together.

Mutual respect at all levels is essential for communication. Both sides must try to understand the view point of the other side. Change on all sides is needed to facilitate communication. Better communication in the future is needed and the Township is in a position to assist.

TELEPHONE INTERVIEW WITH A SPRINGFIELD TOWNSHIP RESIDENT (WITHIN ONE MILE OF SHINDLER ROAD TOXIC WASTE SITE)

February 11, 1982

BACKGROUND

The "X" family has lived on Shindler Road since early 1978. They were in the process of building their own home on a recently purchased site when the Shindler Road toxic waste dump was brought to public attention.

Two daughters live at home; one son is grown and lives elsewhere. The family formerly lived in the Milford/Highland area, and the Farmington area.

The "X" family purchased the Shindler Road property with the hope and expectation that it would be a sound investment. Perhaps in ten years, they would like to sell the property and home and retire to a small community in the Oakland-Livingston County area.

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

Soon after moving to Shindler Road, the husband and wife attended a Township-sponsored meeting which included a discussion of the possibility of a landfill site on Shindler Road. Property on Shindler Road is owned by Mr. Marlowe who owns the sanitary landfill in Rose Township. In the process of discussing the landfill, several residents mentioned "barrels" on the Nickson property and expressed fears about health and drinking water. The "X's" were concerned at the time about possible effects on their family and property, but assumed that they lived sufficiently far from the actual waste disposal site to be safe.

Later, they heard on the television or radio that the materials in the Shindler Road site (Nickson property) were highly toxic. The news was a great shock for their family.

WAS YOUR DRINKING WATER TESTED BY THE OAKLAND COUNTY HEALTH DEPARTMENT?

The family's water was tested for toxic checmicals. Much to their surprise and shock, they were told (via letter) that the tests showed toxic materials to be present. They also used the water supplied by the Oakland County Health Division to Shindler Road residents.

When the Township first delivered water, the family was concerned about the quality. At that point, they purchased a few bottles of distilled water. The expense was not significant, and the Health Division began furnishing water soon after.

The family was extremely surprised and sorry to hear that the well testing program was to be stopped...it had been assumed that it would continue for several years, or that a public water supply would be provided.

The reports from the Health Division that the water was safe to drink were not believed. The time interval for the testing seemed too short to allow for full seasonal variations (such as variations in water table level) to be considered. The family considered the high cost (several thousand dollars) associated with testing their own water to be prohibitively expensive.

After the toxic waste site came to public attention, they were bombarded by door-to-door salesmen. One salesman wanted to sell a "water distiller" for $375 which supposedly would filter the toxic chemicals from the water. The salesman came with pamphlets and materials on the Love Canal disaster.

EFFECT OF THE WASTE SITE ON THE HOUSEHOLD

Direct costs to the family which have been or will be incurred include:

- Legal fees - the family has joined with others in the area to take legal action. At some point in the future, legal costs will be distributed among the participating households. The anticipated cost is not known.

- Marketability of property and potential sales value - it is believed that the marketability of the property and sales value have been reduced as a result of proximity to the toxic waste dump. The family would sell their new home immediately if there were an interested buyer. Since one home in the neighborhood has been on the real estate market for many months, it is assumed that it would be extremely difficult to sell the home. Long-range effects on the marketability of the property are not known, but are a great concern.

- Health care services - although no specific medical costs have been incurred as a result of the toxic dump site, the family is concerned about the long-range effect on their health. The wife is seeing a doctor for high blood pressure and will be informing him about the questions concerning drinking water.

Social and psychological effects of the dump site on the household have been great. The family has felt frustrated throughout the past two years and have had a sense of helplessness concerning solving the problem. At first they assumed that the network of agencies involved, including the Township, would take care of the problem. It was believed that water well testing would continue for a long time, and that possibly an alternative water supply system would be installed. The family now realizes that there are gaps in governmental agency responsibilities and that the scope of the problem is beyond the capability of the Township to solve.

The problem of the toxic dump site and the uncertainty about the future has made the family "depressed" and "miserable". After the Health Division stopped testing the wells and bringing bottled water, the family returned to drinking their well water. The daughters would say, "here goes some more cancer" as they drank the water. The son left home for the Army, in part to get away from the water problem. The family is particularly concerned that they will not be able to follow through on their plan to sell their home sometime in the future and retire in a smaller home.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY AS A WHOLE

The family has discussed aspects of the problem with neighbors, but is not aware of specific economic, social, or health effects on other persons or the Township as a whole.

They are, however, very concerned about the effect of groundwater contamination problems from toxic materials on their children and their children's children. The wife would like to see very strict laws about toxic waste handling and dumping, and noted that the government should restrict who picks up the materials and regulate the location of the dumping. She believes that there is a responsibility in society (and government) to protect present and future community residents from siliar problems and threats to drinking water.

INTERVIEW WITH SPRINGFIELD TOWNSHIP RESIDENT (WITHIN ONE MILE OF SHINDLER ROAD TOXIC WASTE SITE)

February 15, 1982

BACKGROUND

Mr. "D" is a professional real estate broker who lives on Ormond Road within one-half mile of the Shindler Road toxic waste dump site. He has been a Springfield Township resident for four years.

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

Mr. "D" believes that his first knowledge of the toxic waste site on Shindler Road came through neighborhood talk.

To find out what the real situation was, he attended neighborhood meetings (Shindler Road residents) but then "got fed up" because they weren't productive.

WAS YOUR DRINKING WATER TESTED?

Mr. "D's" water supply was tested by the Oakland County Health Division, and after the first test, ran consistently "no problem" for 7-8 consecutive tests. In fact, he believes that his groundwater has less contaminants than city water.

He rejected the water which was first delivered by Springfield Township. It was brown and scummy, and he didn't see a need for it when there was no definitive problem. He also rejected Absopure bottled water (provided by Oakland County Health Division). After doing some checking, he found that it was untreated from an underground spring.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLDS

Now that there is no concern about the drinking water, there is no effect on his family. They have not incurred any special costs, or social or health effects related to the Shindler Road dump site.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY AS A WHOLE

He is not aware of any community-wide effects of the toxic waste site, and does not know how it has affected other families.

However, Mr. "D" does have a neighbor who wanted to build his own home on Ormond Road (near Shindler Road). The neighbor's request for a building permit was originally denied by Springfield Township.

INTERVIEW WITH SPRINGFIELD TOWNSHIP RESIDENT (WITHIN ONE MILE OF SHINDLER ROAD TOXIC WASTE SITE)

February 24, 1982

BACKGROUND

Since 1946, Mr. "H" has lived and worked as a farmer in Springfield Township, just within a one mile radius of the toxic waste dump. He has a large dairy and beef cattle operation on his 500 acres of land.

He served as Springfield Township Clerk during 1963-1972 (the clerk job was a part-time job at that time), and is presently a member of the Township Planning Commission.

Mr. "H" grew up in Rose Township within one-and-a-half miles of the site of the present DeMode Road toxic dump. His brother still lives on the land in Rose Township.

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

By word of mouth through friends and neighbors.

WAS YOUR DRINKING WATER TESTED?

The water well on the farm was tested by the Michigan Department of Agriculture and the Oakland County Health Division. In addition, the Department of Agriculture took milk samples. No problems were identified in the testing.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

The toxic waste site has not had positive or negative effects on the household. Of course, if his water was contaminated, it would ruin his business. Fortunately, this has not been the case. Mr. "H" has not incurred any significant expense related to the toxic waste site.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY AS A WHOLE

Mr. "H" knew that dumping was occurring on Shindler Road. The site was associated with old car bodies and tires. The presence of toxic chemicals was not known.

Although Springfield Township as a whole has had some adverse publicity, he doesn't think property values overall have been reduced due to the dump site. He does not know families on Shindler Road and doesn't know their experiences.

One subdivision plat, Toliver Ridge, was proposed in 1980 after the discovery of the toxic chemicals. The Health Department required special 4" monitor wells to check groundwater conditions; no problem was found. The development has not proceeded -- he does not know the reason why since it was an approved subdivision plat.

INTERVIEW WITH SPRINGFIELD TOWNSHIP RESIDENT (WITHIN ONE MILE OF SHINDLER ROAD TOXIC WASTE SITE)

February 25, 1982

BACKGROUND

Mr. and Mrs. "L" have lived on Shindler Road for approximately five years. They lived in one house for four years and then moved to their present home approximately three years ago. Mr. and Mrs. "L" have two children who attend grade school in Holly.

The family lived in a suburban community in Oakland County before moving to Springfield Township.

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

Their first knowledge that the barrels contained toxic materials came via the media -- newspapers and radio. Mrs. "L" immediately contacted the Oakland County Health Department to obtain additional information, but did not learn much. Later, a list of toxic materials found in the barrels was published.

WAS YOUR DRINKING WATER TESTED?

Yes. Because the family lives within one mile of the dump site, water was tested a number of times. At first TCE and PCE were found in their drinking water. Then later the reports indicated clean water. The family wondered why the water testing was discontinued. It seemed to them that the water well samples were collected at times "convenient" to the Health Department, and not necessarily the times when contaminants would most likely be in the water (such as during wet weather).

The water at their former residence on Shindler Road was also tested, and indicated the presence of lead in significant quantities.

After the County Health Department discontinued the water sampling program, the family had one test run on their water to identify PCB ($100 cost) -- nothing was found.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

The toxic waste emergency has had a severe and lasting effect on the household. In addition to a range of costs and financial impacts experienced, the family has been under great stress and feels that psychological effects have been extensive.

After learning about the toxic wastes, Mr. and Mrs. "L" attended the meetings which Springfield Township organized. They felt that their questions were not answered and that officials did not really care about their health or well-being.

As a result of this feeling and doubts about public agency response, Mr. and Mrs. "L" joined with several other families in a law suit. The suit was filed in September, 1979 for the purpose of forcing public agencies to address the health threat -- the purpose of the law suit is not to receive extensive payment for damages. The law suit is ongoing. No legal fees have been paid to date by them.

Mr. and Mrs. "L" pressured the Oakland County Health Division for blood tests. They were particularly concerned that the children be tested for lead, since their former home on Shindler Road had lead in the water. The tests showed trace levels of lead, but were within "acceptable" limits. They still wonder what the small levels may mean for the future.

The family, at their own expense, had additional laboratory tests, including blood tests, completed by their doctor. The cost for the special testing was approximately $200.

In order to get information about potential health effects from trace levels of toxic chemicals, Mrs. "L" telephoned several different government offices, including the U.S. Environmental Protection Agency and the Michigan Department of Natural Resources. She obtained conflicting information from the two agencies. The extra telephone bill for long-distance calls was approximately $300.

When the toxins were first found in their drinking water, they drank the bottled water provided by the Oakland County Health Division. When the water deliveries stopped, they continued to drink bottled water (Mr. "L" brought it home from work). Then they heard that City of Detroit water was also not good, so they began drinking their well water again.

The toxic waste emergency has had a severe effect on the family's finances and has probably "financially ruined them". Prior to the discovery of the toxic chemicals, the family had purchased vacant land in Groveland Township with the intention of building a new house and moving. Their Shindler Road house was for sale when the toxic chemicals were reported in the papers. They took the house off the real estate market until the situation with the water wells was known, and then put it back on. They have had several realtors and have also tried to sell themselves. Several persons have been interested, but knowledge of the toxic chemicals is a deterrent. The price has been significantly lowered and they are offering an attractive land contract, but no interest.

Their financial resources are invested in their present home. Since they can't sell their home now, they feel trapped and unable to fulfill their goals. Mr. "L" has an interest in becoming a builder, but without the ability to move, he will not be able to pursue his ambition. (The experience in building his home and working with contractors would be lost.) All of the family's plans for the future have had to change -- one factor leading to stress.

The psychological effects on the entire family have been great. Mrs. "L" is concerned about the long-term health effect on her children's children. The children themselves feel the parent's concern and stress, and are also worried. Their ten-year old used to say, "don't drink the water -- it's poison." The family will never feel totally right about drinking the water. Fortunately, the danger is not what was originally thought, since contaminants did not recur in water testing.

Mr. and Mrs. "L" have no confidence in the ability of government agencies and officials at any level to respond to the toxic waste cleanup problem. Agencies have not responded. Since the dump site was known in the early 1970's, something should have been done. The publicity put pressure on officials who should have responded in the first place. Big business runs hand-in-hand with government, and there is little concern about the real health threats in the community. The agencies did not respond until forced to do so. Property taxes were only reduced by $100-200 -- and insignificant amount.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY AS A WHOLE

Adverse publicity about the toxic waste site on Shindler Road has affected the entire Township. People associate Springfield Township with toxic wastes and have a negative image.

In general, Mr. and Mrs. "L" do not think that the site has directly affected people beyond one-and-a-half miles. People who live away from the site don't feel that it is their problem.

Families on Shindler Road are deeply concerned. A neighbor of theirs moved to Flint two years ago (after the discovery). The former neighbor had a recurring problem with cancer, and thought that it might be connected with the drinking water.

At first, the toxic waste site concern brought families in the immediate neighborhood together. Now, since there are two separate law suits ongoing, it may have the opposite effect.

Many residents in the area share their view that the "health department is a joke." If the health department had been interested in the health of the residents, water well testing would have continued for a longer period of time.

INTERVIEW WITH SPRINGFIELD TOWNSHIP RESIDENT
(WITHIN ONE-AND-A-HALF MILES OF SHINDLER ROAD TOXIC WASTE SITE)

March 9, 1982

BACKGROUND

Mr. and Mrs. "M" and their two daughters (an infant and a pre-schooler) moved into their newly built home on Shaffer Road in early March, 1982. At the time that the toxic waste site on Shindler Road hit the newspapers in August, 1979, the family was just about to pour the basement of their home. As a result of questions concerning the drinking water supply, the family delayed building for two years.

Mr. "M" is employed by a Troy business. Before moving to Springfield Township, the family had lived in the Berkley area (southeast Oakland County, approximately three miles north of Detroit).

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

The newspapers were the primary source of information. The week before the "M" family was planning on beginning construction, they read the article in the Detroit Free Press about the toxic wastes and made the decision to delay building and wait out the situation.

WAS YOUR DRINKING WATER TESTED?

No, since the family was not in residence at the time the Oakland County water testing program was being conducted. The family plans to dig a well and have it tested as soon as possible. In the meantime, they are drinking bottled water obtained from parents living in Royal Oak, Michigan. The "M's" do not have any information on approaches for water testing and possible costs involved. They intend to keep the infant on bottled water for several years, regardless of the result of the well testing.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

The toxic waste site has affected the "M" family in two significant ways: (1) costs associated with delayed building; and (2) concern and stress related to making a decision about the move and the possible future effects on the family's health.

Prior to August, 1979 when the toxic chemicals were announced in the newspaper, the family had sold their home in Berkley and had made arrangements to live in a condominium in Romeo for six months. With the questions about future drinking water supplies unanswered, the "M's" decided to stay in the condominium for a year to consider their options. They then decided to purchase another home in Royal Oak (near their original Berkley home). Finally, in 1981 they decided that it was probably safe to proceed with the building of their home and subsequently moved in.

Mrs. "M" attended all of the Springfield Township meetings on the toxic waste site. Other information was obtained through discussions with a neighbor who had originally sold the property to the family.

The "M's" new home overlooks a pond which can be used for swimming and boating. In 1980, abutting neighbors had the lake water tested for toxic chemicals (none were found). The testing was paid for by one of the neighbors who felt comfortable with sponsoring the project and paying for it.

Specific financial costs incurred as a result of the delayed building included:

1. The difference between a nine-and-one-fourth percent mortgage for the home as compared with a 13% mortgage.
2. The cost of a second house blueprint ($500). (This would not normally have been an expense but the family decided to alter the design in the time they were waiting for news about the toxic chemicals.
3. Rental costs for six additional months (the original plan was to rent for six months rather than a year).
4. Taxes paid on the property for three years while they were not residents (in effect, paid the taxes on two homes).

Fortunately, the "M's" were able to buy and sell their second home in Royal Oak at no net loss. They were fortunate in having sufficient liquid funds to purchase a house, even after having paid a substantial purchase price for the two-acre lot. The loss of interest on the money which they otherwise would have obtained, however, is a loss.

Before deciding to build their home, the "M's" tried to sell the property. They received several telephone calls but no substantial interest (they do not know if this was a result of the toxic waste dump or the general downswing in the real estate market).

An additional cost was a $200 legal fee related to consultations on suing the real estate company which sold the "M's" the property. They did not pursue legal action.

Overall, the "M's" believe the toxic waste site has lowered property values in the area since the potential for sales has been significantly reduced.

Because the family had not actually been drinking the water at the time the toxic waste site was found, the family did not experience the stress and worry of other Shaffer and Shindler Road families. They believe that surface water flows away from their property (toward the south) which is somewhat reassuring.

The experience of attending the Township-sponsored meetings and listening to resident reactions was something like watching a movie.

The newsletter from the Oakland County Health Division was helpful and was "sort of convincing." However, overall, they do not believe that the water is known to be clean. They have some suspicions about the Oakland County Health Division.

In one sense, the issue brought neighbors closer together. But there is still a lingering sense of doubt. Mr. "M" wonders whether it is wise to plan a garden (something they specifically wanted as part of their new rural home). The "M's" would never purchase property in this same location if they had a second chance.

They may wish to sell and move somewhere else in five years.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY AS A WHOLE

The family has no knowledge of community-wide effects.

INTERVIEW WITH SPRINGFIELD TOWNSHIP RESIDENT (WITHIN ONE MILE OF SHINDLER ROAD TOXIC WASTE SITE)

March 23, 1982

BACKGROUND

Mr. "Q" has lived on Ormond Road within one mile of the toxic waste site for 11 years. He commutes daily to his business in Dearborn, Michigan. Mr. "Q's" father owns 20 acres of land next to Mr. "Q's" home, and is intending to move to Springfield Township sometime in the near future. (Mr. "Q" is also a real estate investor and is knowledgeable about property value trends.)

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

Mr. "Q" knew there were barrels on the Nickson property prior to 1979, although he didn"t know what the barrels contained. Although the barrels were visible on the ground surface, it did not appear to be hundreds of barrels. The media (especially television) brought the issue to the attention of most residents.

WAS YOUR DRINKING WATER TESTED?

Mr. "Q's" water supply was tested by the Oakland County Health Division regulary between August, 1979 and June, 1980. In the first round of sampling, a pollutant level of 2 ppb (parts per billion) TCE was reported. After carefully reading the materials sent by the Oakland County Health Division, he realized that the trace level was not a health threat or problem. No contaminants were reported at any level after the first test.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

Since there is no water contamination problem for him or the neighborhood, the toxic waste site on Shindler Road has not had a direct effect on Mr. "Q's" household. He does fear, however, that there has been a negative effect on property values.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY AS A WHOLE

Mr. "Q" is convinced that the only real problem in the Shindler Road area was the exploitation of the situation by the media. The issue of the toxics was in the newspapers for months (especially the Oakland Press which is the daily newspaper read by many in the area). The newspapers never projected the truth about the trace levels of the materials. Many residents relied on the media as their major source of information.

Residents were needlessly scared because of the media coverage. People should have been given truthful information on a continuing basis -- an alternative to the media needs to be available. The Health Department sent letters concerning the results of the well testing, but residents may not have understood what was said. In retrospect, it would have been useful to organize a "positive" media campaign.

It is disappointing that Springfield Township officials did not look into the situation ten years ago. While he has lived on Ormond Road, however, there has never been a sense of the Nickson property being a public dumping ground. The extent of the problem simply was not visible. It may be difficult for the Township to get involved in solving the problem without incurring liability for cleanup.

The damage to property values and marketability of property was not dependent on the real health threat -- it has been directly related to the publicity and media coverage. The damage was done two days after the newspaper stories announced toxic chemicals in the barrels.

It is his view that the persons involved in the law suit against Oakland County are greedy and searching for a dollar settlement. The fact that the Township reduced taxes the first year may have given the law suit some energy.

One positive suggestion to avoid the media impact would be the organization of a citizen committee to find out answers to question on behalf of the neighborhood.

INTERVIEW WITH SPRINGFIELD TOWNSHIP RESIDENT (WITHIN ONE MILE OF SHINDLER ROAD TOXIC WASTE SITE)

April 19, 1982

BACKGROUND

Mrs. "P" lives with her husband and children on Shindler Road, within one-fourth mile of the toxic waste site. They have lived in their present home for about six-and-a-half years. Before moving to Springfield Township, they lived in Waterford. The family moved to the country for the good environment in which to raise children, rural atmosphere, and a chance to raise animals.

HOW DID YOU LEARN ABOUT THE TOXIC WASTE SITE?

Mrs. "P" learned about the Shindler Road toxic waste site at a Township meeting in January, 1979. The purpose of the meeting was to review a proposed zoning change which would have allowed a landfill on Shindler Road, not far from their home. The land is owned by the Marlowe's, the family that runs the landfill in Rose Township, and is adjacent to the Nickson property where the toxic wastes were found.

The zoning variance request for the Landfill was not granted. However, at the meeting, a property owner in the area brought a letter concerning the Nickson property to the attention of Township officials. The letter was from about 10 years ago and was signed by the Health Director for Oakland County. It stated that barrels on the Nickson property could be the cause of groundwater problems and ordered the cleanup. The person with the letter also had pictures of the barrels on the Nickson property.

WAS YOUR DRINKING WATER TESTED?

The water supply well at the "P's" home was tested by the Oakland County Health Division. Low levels of phenols were the most significant chemicals found. The Oakland County Health

Division did not believe the levels warranted bottled water, and the family was not initially included in the bottled water program. After many requests, and a visit to the Health Division, however, the family did receive bottled water from the County.

The Oakland County Health Division took three water well samples and then discontinued because they said there was no reason to be concerned. In April, 1981, just before a court hearing on the toxic waste site was held, the "P's" again had their water tested. When Mrs. "P" asked the Health Division staff collecting the sample about other persons in the area having their water tested at that time, she was told that only a few homes were included. According to the Health Division staff, it was possible that another sampling was being taken because of the upcoming court hearing. It appeared that the only parties involved in the lawsuit were having their water tested.

The family's water was tested by a private laboratory on one other occasion. An attorney who was offering to handle legal action for the residents made arrangements to have their water tested. The "P's" did not pay for the testing.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

The first effect of the toxic waste site on Mrs. "P" was to cause grave concern and to stimulate action. Mrs. "P" telephoned the Oakland County Health Division the day following the Township meeting (January, 1979) when she first learned about the toxic wastes. The person she talked with said that he would call her back with some information but neglected to do so. The next time that she telephoned the Health Division, the person she had initially talked with was no longer there.

In the Spring of 1979, she saw the television documentary "The Killer Ground," which described various places in the United States where toxic wastes had been found. The documentary upset her greatly, and caused her to telephone the Oakland County Health Division again (April, 1979). When she telephoned, she reached Bob Long who said that he would look into the situation and let her know the status. Bob Long did return her call several days later and explained that they were checking into the matter. She did not hear from him again.

In August, 1979, a reporter from the Detroit Free Press learned of the toxic wastes and printed a story which created chaos. The article pointed out that toxic chemicals were in the barrels, a fact which caused great concern among the residents. It is Mrs. "P's" view that the newspaper article was a catalyst for agency action. Before the newspaper article, little agency response took place. After the article was published, water sampling was immediately done and a visible response occurred.

The family drank bottled water, delivered by the County, for a period of time. Due to the expense and the large size of the household at the time (eight children and two adults), the family resorted to drinking their well water again when the bottled water delivery was discontinued. Mr. "P" had been unemployed for quite some time and the family couldn't afford the expense.

It sometimes bothers Mrs. "P" that the family is drinking the water from their well, especially in view of the uncertainty about the conditions at the site and the surrounding area. After a while, the concern becomes part of their life. Some days she is more worried than others. She is particularly concerned about their four year old child who was born while they have lived on Shindler Road.

Her distrust of government agencies is at a high level. Agencies were passive until the media publicity occurred. Why was so little action to help residents taken before August, 1979? Before her involvement with the toxic waste issue, she assumed that it was the job of various government agencies to protect public health. She feels that, after all, agency positions were created for the sole purpose of overseeing the health and welfare of people who pay their salary. She now knows that citizens have to protect themselves.

In the Fall of 1979, neighbors in the area met as a group to decide a course of action. As a result of lack of communication and information from state and county agencies, they were frustrated and realized that strong action was needed. It was frustrating to telephone for information and have the feeling that the information needed to be "pried" from the staff. The group concluded that legal action against the agencies was the only way to obtain a response. The citizens also felt that legal action was needed to find the parties responsible for the dumping. At the time, they didn't realize the extent of the dumping and had little information about the potential impacts of toxic wastes.

The "P's" have not paid substantial legal fees to date. The cost for legal action in the future is uncertain. One positive result of the legal action to date has been agreement on further water well testing. The details are being worked out by the technical consultant employed by their attorney and the Oakland County Health Division. The purpose of the attorney's involvement is to protect the interests of the citizens.

The process of finding and selecting an aggressive attorney was a challenge. Several residents interviewed several law firms before an attorney was selected. The substantial driving and telephoning was an expense to the family for several months (Mrs. "P" also telephoned other agencies for information).

Mr. "P" has lost one day's income as a result of court depositions. (He had to tesitfy one day.)

The "P's" are concerned about the approach used by the Oakland County Health Division in testing wells. Why was their water not tested on a continuing basis? Staff at the TSCC stated that results from the water well tests were inconclusive concerning potential contamination. How can public health tests be discontinued when results are inconclusive? In addition, TSCC staff told her that her water was not being tested on a continuing basis because, in their opinion, groundwater was flowing in a different direction. How does the TSCC know the flow of groundwater when the Department of Natural Resources does not?

Mrs. "P" also feels that residents were confused about the water sampling program because of lack of information from agencies. She feels that advance notification to residents for water sampling is important. Some residents turn their outside water taps off to avoid freezing. In addition, people have been concerned about the water sampling, and would like the assurance that a sample had really been drawn. In addition, some residents have been confused about the way in which water samples were taken. Why are certain procedures followed in some cases (such as allowing the water to run for 10-15 minutes) but not followed in other cases? The lack of information makes citizens suspicious.

During the time of the water sampling, residents often didn't know which agency to contact. Who do you ask for when you telephone a state or county agency? "No news" is not good news when residents have concerns about toxic chemicals.

The newsletter from the Oakland County Health Division was helpful when it was issued on a regular basis during the first several months. After the first several issues, however, publication was infrequent and it failed to serve the purpose of keeping residents informed.

In some cases, the newsletter from the Oakland County Health Division appears prejudiced, althought Mrs. "P" is not sure if this is intentional. When the recent issue stated, "as expected, the water well tests showed no contaminants," she wondered how they knew what to expect.

One of the greatest impacts of the toxic waste site on the family has been the feeling of being trapped. Any personal plans to move are now put aside. At one point, they were trying to sell their home, but took it off the market when there was no interest. Who would buy a home within one-fourth mile of a toxic waste site?

The family is very bitter that agencies knew about the toxic wastes for ten years and did nothing.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY

The toxic waste problem has brought neighbors together to cooperate on a common response. This has been a positive effect.

INTERVIEW WITH SPRINGFIELD TOWNSHIP RESIDENT (WITHIN ONE-AND-AND-A-HALF MILES OF SHINDLER ROAD TOXIC WASTE SITE)

March 1, 1982

BACKGROUND

Mrs. "T" is a professional realtor and has lived on Shaffer Road for seven years. She has two children, ages 14 and 16.

The family initially owned a large tract of land, and they have now sold several parcels to other families.

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

Mrs. "T" heard about the toxic waste site through a friend of her 16 year old son who lives on Shindler Road. She also heard about it in the newspapers.

WAS YOUR DRINKING WATER TESTED?

The family's water supply was tested, but no significant level of toxic chemicals was detected. They never drank bottled water.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

The "T" family was in the process of building their home when the toxic waste site was "rediscovered". Without specific information about water well problems, they did not wish to alter their plans and therefore continued the construction. Fortunately, no water supply problem was found.

None of the "T's" is particularly worried about present or future health problems.

They did have some concerns about the pond on their property which is used for swimming and boating in the summer. When the toxic site was discovered, neighbors on Shaffer Road met and agreed to have the pond (which is used by several families) tested for toxic chemicals. One of the Shaffer Road residents offered to pay for the testing. No problems were detected.

Since the toxic waste site was found, Mrs. "T" has been trying to sell some land abutting Shaffer Road. Due to the overall decline in the market, it is not possible to tell whether the toxic waste site has affected the property. They have received several telephone inquiries but no real interest.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY

The Shindler Road toxic waste site has had a definite effect on property values and the marketability of property throughout Springfield Township. Mrs. "T" works as a realtor in the Clarkston area and handles property sales in different locations of the Township. The effect is definitely not limited to Shindler Road. Persons calling about property from other communities do associate Springfield Township with the toxic wastes. She suspects that the impact on Springfield Township may even be greater than Rose Township because Springfield has been experiencing rapid growth.

She handled one sale of a home on Ormond Road after the toxic waste site was found. The owner was recently unemployed and needed to sell the home quickly. The original asking price of $120,000 was reduced to $70,000 and the sale was made.

The toxic waste concern has had a positive impact on the neighborhood. When the problem first arose, neighbors met to determine a course of action, strengthening neighborhood ties. She believes that Shaffer Road residents have acted in a rational fashion while Shindler Road residents have panicked. Unfortunately, the community meetings in the Fall of 1979 served to increase concerns and fears. The decision of the Shaffer Road residents was to test the pond water and then "wait-and-see". Now there seems to be no cause for alarm.

INTERVIEW WITH SPRINGFIELD TOWNSHIP RESIDENT (BIG LAKE AREA) (WITHIN TWO MILES OF SHINDLER ROAD TOXIC WASTE SITE)

March 18, 1982

BACKGROUND

Mr. "U" lives in the area of Big Lake, approximately two miles from the Shindler Road toxic waste site. His wife spent summers on Big Lake when she was growing up, and his wife's parents also live on Big Lake. He commutes to his business in Novi.

Mr. "U" served as President of the Big Lake Water Quality Association up until several years ago (the Association is a voluntary organization for lakeshore residents). He is presently President of the Big Lake Improvement Board, an organization with legal authority to assess lakeshore property owners for lake improvements. Mrs. "U" serves as chairperson of the Springfield Township Board of Review.

HOW DID YOU FIRST LEARN ABOUT THE TOXIC WASTE SITE?

Staff from the Michigan Department of Natural Resources first brought the toxic wastes to Mr. "U's" attention. Mr. "U" was in touch with DNR staff because a lake improvement study is being conducted by the DNR for the Big Lake Improvement Board.

He also learned about the Shindler Road site through the newspapers.

WAS YOUR DRINKING WATER TESTED?

Since the "U's" live beyond a one mile radius of the Shindler Road toxic waste site, their well water was not sampled by the Oakland County Health Division.

When the presence of the toxic wastes became known, however, a number of Big Lake property owners were greatly concerned. Surface water originating at the Shindler Road toxic waste site flows in a northeastern direction toward Big Lake and contamination of the Lake (and possibly groundwater) was feared.

To answer the question of groundwater contamination, Mr. "U" carried a water well sample from his well to a research laboratory in Pontiac for analysis. Samples from two homes on Shaffer Road and a sample from a neighbor's well were also delivered. The water supplies were tested for six parameters (including PCB, TCE, and PCE). No trace levels were found. The cost was approximately $250 for the six parameters.

Surface water lake samples were not taken.

EFFECT OF THE TOXIC WASTE SITE ON THE HOUSEHOLD

Since groundwater contamination was not found in Mr. "U's" water supply well, the toxic waste site has not directly affected his household. However, his mother-in-law is afraid to go swimming in the lake or to eat fish from the Lake.

At a meeting to discuss the effects of the toxic waste site, a representative from the Oakland County Health Division indicated that the pollutants won't affect Big Lake, and that they will be trapped. Mr. "U" questions and wonders how the Health Division could be familiar with the complex flow of groundwater without the availability of specific technical studies.

EFFECT OF THE TOXIC WASTE SITE ON THE COMMUNITY

Many residents of Springfield Township (including the Big Lake area) are angry and frustrated that county and local officials were aware of the toxic waste site but did little to respond. Officials addressed it as well as they could when the site was rediscovered, but much damage was already done.

Samples of bottom sediments and fish will be taken and analyzed for toxic chemicals as part of the Big Lake improvement study. The purpose of the study is to determine what methods will be most effective for lake restoration. A project involving dredging of Big Lake may be necessary. The toxic chemical analyses are typically carried out for lake improvement studies. The findings are of particular concern in Big Lake, however, because of concerns about the Shindler Road toxic waste site. A number of lake area residents will not eat fish from the Lake because of uncertainties.

The effect of the toxic waste site on Big Lake residents was greater than it should have been because of misinformation in the Detroit News. When the toxic wastes on Shindler Road were first found, the Detroit News published a story about Big Lake. The story quoted an aquatic biologist as saying that he wouldn't eat, drink, fish, or swim near Big Lake. Mr. "U" telephoned the reporter after the story was published, and the reporter admitted that the "truth" had been stretched, and that he wanted to help Big Lake residents by making them aware of potential threats. A retraction or correction was never published.

As a result of a laboratory mistake, one water well sample (southwest Big Lake area) was reported to have contaminated water. This finding was not confirmed in subsequent tests.

Some residents on Shindler Road have caused resentment by attacking everyone involved. Some residents in the Shindler Road area, however, are not concerned because drinking water supplies have been found to be clean.

The toxic waste site has adversely affected property values in the immediate area of the site and even the Township as a whole. Even outside Springfield Township, people have heard of the toxic waste sites...they stay in people's minds. Many people who appeal property tax assessments reference the effect of the toxic waste site.

When the toxic waste site was first found, Mr. "U" received many telephone calls from Big Lake area residents inquiring about the problem. He believes that older people are more likely to be concerned.

Township officials did address the problem in the best way they could. There was a need to stop a panic situation. Although the toxic waste site is not discussed as frequently as it was originally, the effects on property values are still present.

INTERVIEW WITH DAVISBURG REALTOR

January 15, 1982

EFFECTS OF THE TOXIC WASTE SITES ON REAL ESTATE

Mr. "J" feels that precise effects of the Shindler Road and DeMode Road toxic dump sites on real estate values in Rose and Springfield Township cannot be determined. A judgment could be made if sales in the general areas were active. Overall sales have been low for a variety of reasons, so it is difficult to see trends.

Nevertheless, it is his personal view as a real estate broker that the toxic dump sites would have some effect in lowering the sales potential of sales in the immediate area of the sites (perhaps within one mile). This presumption cannot be proven or supported with evidence.

Market value is determined by the price that a "willing buyer" pays a "willing seller". Prospective purchasers are always interested in information about the community. When he shows properties, he makes a point of explaining the strengths of living in the area. But when the decision is made, many different factors enter in. Economic, geographic, and environmental factors will influence purchasers in different ways. In today's economic environment, inquiries concerning property are few; there is total discouragement about the real estate market.

DEVELOPMENT TRENDS AFFECTING ROSE AND SPRINGFIELD TOWNSHIPS

Mr. "J" is familiar with development trends throughout Rose and Springfield Townships. The real estate office deals with properties (especially vacant land) in Rose, Springfield, Independence, Groveland, and Holly Townships. He has been a resident of Springfield Township all of his life and active in community affairs. Prior to the election of his son to the Supervisor position, Mr. "J" served on the Springfield Township Board of Review.

The "suburbanization" trend in Rose and Springfield is created, in part, by persons presently living in the suburbs making a second move. For example, Waterford Township residents are sometimes interested in moving to a more rural community. They answer calls and telephone inquiries from Troy, Southfield, and Birmingham.

In the early 1970's, persons moving into the area were often "moving up" in terms of housing quality. Today, this trend has changed. Purchasers want to move in order to take advantage of good housing buys or the attraction of a rural environment. The plat map shows that many owners have 10 acre parcels -- Springfield has not been suburbanized to the extent of Independence Township or locations closer to the urban area.

Springfield Township can be characterized as a "semi-rural" environment. Only three full-time farmers remain...two on Ormond Road and one on Scott. Owners of 10-acre parcels may do some gardening, but not on an economic scale.

Often new residents are interested in the slower pace of rural living...the "slower pace of yesterday". They may be concerned at first when they find a lack of services previously available to them...but then new residents sense the security blanket of the community. People care about each other and will respond to emergencies.

Governmental organization is different in Rose and Springfield Townships. In Springfield, the Supervisor serves as full-time administrator. In Rose Township, the office is only open on a part-time basis. Springfield has the nucleus of businesses in Davisburg. Rose Township is oriented toward Holly, and has only a few small businesses.

Since Rose is further away from the Detroit/Pontiac urban area, development has been slightly less and property values are slightly lower. Some areas of Rose Townshp are probably too distant to attract commuters.

PSYCHOLOGICAL EFFECT OF THE TOXIC WASTE SITES

Long-time residents are very blase' about the dump sites. Persons who have come to live in Springfield Township over the past ten years, however, are very concerned.

The psychological effect of being "labeled" as a toxic dump area is an insidious problem, not just confined to the immediate sites. He has not felt that the toxic sites have caused potential purchasers of property to look elsewhere. Within one-half mile of the site, however, potential residents would have an aversion to purchasing property if they were made aware of the dump site.

The basic question is how important the toxic dump site would be to people interested in purchasing property. The answer might be different if the economy were strong than if it were slow (as is the case). People calculate how far a property is from the site, weigh other factors, and then make a decision.

If he were moving to a new location, he would do his own evaluation and research on factors influencing property values. He would not be adverse to living within one mile of a toxic dump site (assuming no water well contamination).

RECENT SALES NEAR THE TOXIC DUMP SITES

Mr. "J" reviewed the multiple listings for information on sales within one mile of either Shindler Road or DeMode Road since Fall, 1979.

Shindler Road:

1. Four one-acre vacant parcels sold on Ormond Road, within one mile of Shindler Road.

   Sales took place in April and May of 1980; had been listed for 385 days. Asking price as $12,000/acre. Each of the four parcels sold for $11,500/acre.

2. Unfinished home on Eagle Road (west off Ormond; within one-and-a-half miles of Shindler.) Sold April, 1980, in 22 days for $55,900.

3. 13055 Shindler Road - three bedroom, one-and-a-half bath house (1300 square feet on a five-acre lot) - sold in 179 days for $67,900.

DeMode Road:

1. Vacant five-acre parcel on Hickory Ridge Road (1.5 miles northeast of DeMode Road site.) Listed for $16,000 for 190 days; sold in September, 1980 for $14,500.

Overall, the number of sales in January-September, 1981 was less than one-half the sales the previous year. High interest rates and the decline in the automobile industry has meant more sellers than buyers.

INTERVIEW WITH TWO CLARKSTON AREA BROKERS

INTRODUCTION AND BACKGROUND

Broker "A" and Broker "B" work together in a Clarkston-based real estate office which sells property in Rose and Springfield Townships, among other locations. Broker "A" lives within one-half mile of the Shindler Road dump site and owns other property within one mile of the Shindler Road site as well. Broker "B" is both a broker and a realtor, and sold a number of land parcels in the Shindler Road area for development about 12 years ago. (A total of about 140 acres.)

PUBLIC KNOWLEDGE OF THE ROSE AND SPRINGFIELD TOWNSHIP DUMP SITES

It is difficult to precisely determine the reasons why the real estate market is slow -- the general economic decline and high interest rates are obvious factors.

Government agency staff and officials are aware of the toxic waste dump sites but the general public (outside of perhaps Rose Township) is not. Less than one in ten persons who contact their office with an interest in Rose and Springfield Township are aware of the sites. Knowledge and concern has also diminished since 1979 when the toxic waste dumps were announced in the newspapers.

However, there is still some recognition of Rose Township today. The problems and publicity with the Marlowe landfill may be creating the bad name.

When the perspective purchasers are interested in Rose and Springfield Township locations, they do not make it a point to mention the dump sites. It is their understanding that the danger to water supplies is over.

EFFECT OF THE DUMP SITES ON REAL ESTATE VALUES

Broker "A" and Broker "B" do not believe that the dump sites have or will decrease property values in the long run, even within one mile of the sites. On a temporary basis, however, the marketability of the property will probably be less than otherwise.

During the interview, Broker "C" from the same office joined the discussion. Broker "C" pointed out that the DeMode Road dump site in Rose Township (perhaps in conjunction with the debate about the Marlowe landfill expansion) has definitely hurt Rose Township. He knows personally of one party who refused to complete arrangements for financing a land contract purchase in Rose Township. The potential lender simply refused to make any loans in the area.

Much of the land in the Shindler and Shaffer Road areas has already been sold so it's difficult to judge the effect on land prices.

More significant than property value effects would seem to be the psychological effect and mental stress associated with living near the dump sites. How do you get the thought out of your mind that your children's health may be affected?